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Building Server Capabilities and Beyond

Trajectories, contextual implications and performance

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BUILDING SERVER CAPABILITIES AND BEYOND

TRAJECTORIES, CONTEXTUAL IMPLICATIONS
AND PERFORMANCE

BY
OLUSEYI AFOLABI ADEYEMI

DISSERTATION 2015



AALBORG UNIVERSITY
DENMARK

Building server capabilities and beyond

Trajectories, contextual implications and performance

In partial fulfillment of the award of a PhD degree at the

Center for Industrial Production

Aalborg University

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9220, Aalborg Øst

Denmark.

Oluseyi Afolabi Adeyemi

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Dansk sammendrag

Mange vestlige virksomheder har i stigende grad flyttet produktion til Kina for at drage fordel af billige ressourcer, og for at få adgang til et marked med stort potentiale. Som led i udflytningen af forskellige virksomhedsaktiviteter ser vi også at rollerne for de etablerede dattervirksomheder ændrer sig over tid og det samme gør sig gældende for de kompetencer der skal matche rollerne. Der opstår dermed et behov for at udvikle de nødvendige kompetencer til at klare de ændrede roller. I litteraturen er der identificeret forskellige typer af offshore datterselskaber, herunder det såkaldte ”server datterselskab”. Disse selskaber understøttes af såkaldte serverkompetencer, som sætter datterselskabet i stand til at udføre sin rolle effektivt. Formålet med afhandlingen er, at bidrage med væsentlig indsigt i processen omkring denne type kompetenceudvikling i datterselskaber, men samtidigt også at forstå implikationer ved at disse samtidigt arbejder i spændingsfeltet mellem at behovsafdække og forsyne det lokale marked, mens de må arbejde på at opfylde globale/HQ krav. Efter identificering af forskningsområdet identificeres fire områder, der er særlig væsentlige at undersøge: (i) udviklingsforløbene, der former datterselskabet roller, (ii) kontekstuelle påvirkninger herunder (hovedkontorets) konkurrencedygtighed, drift og globaliseringsstrategi; industrielle og lokale karakteristika (f.eks. infrastruktur, tilgængelighed af kvalificeret arbejdskraft, markedskaraktistika og konkurrence), (iii) ledelsesmæssige udfordringer - som såvel det danske hovedkvarter som det kinesisk datterselskaber skal forholde sig til i forhold til udvikling af server-kompetencer og (iv) serverkompetenceudviklingens indflydelse på driftsmæssig performance.

Preface

Many western companies have moved operations at an increasingly wide range and volume to China in order to take advantage of cheap resources and to gain access to a market with huge potential. Once subsidiaries are established, their roles and, in effect, the capabilities matching these roles tend not to be fixed but to change and develop in the course of time. In the literature, various offshore subsidiary types have been identified, including the so-called server subsidiary; the capabilities needed for such a subsidiary to perform its role effectively are server capabilities. The objective of this research is to propose significant insights into the process of capability development of subsidiaries serving local market and global/HQ requirements. Following this objective, four areas are identified to be of particular interest to investigate: (i) trajectories shaping subsidiary roles, (ii) contextual influences, including (headquarters') competitive, operations and globalization strategy, and; industrial and local characteristics (e.g. infrastructure, availability of a qualified workforce, market characteristics, competition), (iii) managerial challenges faced by headquarters and its subsidiary in relation to the development of server capabilities, and (iv) the influence of server capability development on operational performance.

My experience with producing this PhD thesis can be described as a mix of interesting and challenging moments. Accomplishing this thesis and rising above its immense challenges have not been all by my strength and wisdom, but by the grace of God. Hence, I thank God for helping me thus far.

I am also indebted to several individuals for supporting me throughout this research process. Firstly, I would like to greatly thank my supervisors. I have enjoyed top quality supervision, scholarly guidance, straightforward interactions and collaboration with my supervisors: Professors Brian Vejrum Wæhrens and Harry Boer, and Associate Professor Dmitrij Slepnirov. I am very grateful for the scholarship provided by the Sino-Danish Center for Education and Research (SDC). I am also grateful for the facilities, office space, and good academic environment provided by the Center for Industrial Production, Aalborg University. My research stay abroad took place at the National Institute for Innovation Management (NIIM), Zhejiang University, China and at the SDC facility at the University of Chinese Academy of Sciences, Beijing, China (UCAS). Great thanks to Professor Xiaobo Wu for being very hospitable and inviting me to take part in the engaging atmosphere in the research groups at NIIM and to

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My PhD courses have nurtured my development and I would especially like to mention the EIASM EDEN seminar on research methodology in operations management arranged by Professor Pär Åhlstrom and other erudite scholars, and the methodology for quantitative research course by Professor Thomas Schøtt. My thanks to Dr. Andy Lowe and Dr. Barney Glaser – both of the Grounded Theory Institute in California, for the Skype conversation we had. Similarly, I am genuinely grateful to the editors and reviewers of the book “International Operations Networks”. I have had the opportunity to interact directly with leading scholars in the fields of operations management and innovation management during the conferences and seminars organized by the European Institute for Advanced Studies in Management (EIASM), the European Operations Management Association (EurOMA), the Global Network for the Economics of Learning, Innovation, and Competence Building Systems (GLOBELICS), the Continuous Innovation Network (CINet) and the China Innovation Circles and Academy of Learning, Innovation and Competence Systems (CICALICS), and I am indebted to the many people who have inspired me and given me thought-provoking remarks. I am particularly grateful for the help I received from interviewees from the case subsidiaries. I would also like to extend my gratitude to all CIP staff, colleagues and friends who have provided a fun and social atmosphere at work, as well as after work, in China, Denmark and Nigeria. I just cannot fill this space with all their kind courtesies, but they will always remain indelible in my mind.

Special thanks to my dear parents, parents-in-law, siblings, and in-laws for their patience, love and support. A warm and particularly important expression of gratitude is devoted to my wife Esther Onoge Adeyemi and to my son Solomon Oluwadamilare Adeyemi, for their unconditional love and extreme patience because each page of this thesis indicates a time spent away from my responsibilities as a hubby and a father.

Oluseyi Afolabi Adeyemi

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Chapter 1 Introduction and outline of the thesis

1.1 Introduction

Global competition has become more complex than ever. Over the past 30 years, sharp declines in communication and transportation costs and the reduction of trade barriers have transformed the global economy. Major new markets continue to open and as wages and purchasing power rise in emerging markets, their relative importance as centers of demand, not just supply, is growing. That is leading a lot of industries and especially their subsidiaries in local markets to change focus. Many multinational corporations' (MNCs) subsidiaries have gone through a remarkable growth and development process, changing from typical manufacturing firms with a focus on low-cost production into innovation and change-oriented units developing, producing and selling products in local markets. In the process the subsidiaries extended their activities to include R&D, new product development, supply chain management, marketing and sales, all needed to actually be able to penetrate and serve the local market context. The question is: how do subsidiaries develop the capabilities needed to develop, produce and sell in or, in other words, serve local markets?

MNC subsidiary development has become more dominant in connection with Western firms entering emerging markets. However, as important as this topic is, there is little information on how MNC subsidiaries penetrate and serve a local market. Information on MNC subsidiary development is often communicated taking HQ's viewpoint. However, we need to look in greater detail at, and develop useful and usable knowledge on, the trajectories developing MNC subsidiaries follow, contingencies affecting these paths, and performance effects. Today, global strategists need to go beyond traditional questions such as: which are the most attractive markets for their company, and which markets are "closest" to them in terms of institutions, level of development and culture. They must sharpen their global strategies by focusing on how to exploit, enhance and develop capabilities required for their current and future operations.

While low cost advantages are fading, the possibilities to capitalize on investments already made to access and serve local markets are increasing. The question is: how?

Critical questions to be answered include:

1. Do the MNC's and its subsidiary's current capabilities provide a competitive advantage in the local market?
2. If not, what capabilities are needed and what needs to be done in order to create them?
3. How do factors such as the MNC's strategy and local market and technological context affect the needs and possibilities to develop subsidiary capabilities?

Just like their counterparts in developed markets, companies in emerging markets are required to combine efficiency, quality, speed, flexibility and, increasingly also innovativeness, so as to be able to develop and produce a sufficiently wide range of not only acceptably priced, but also high quality and up-to-date products, which are delivered reliably and fast (Boer, 1992; Cagliano et al., 2005).

Various scientific disciplines are dealing with this challenge, including international business and management, operations management, and organizational design theory. Section 1.2 defines these disciplines. Subsequently, Section 1.3 sketches a brief history of globalization, after which Section 1.4 focuses on streams of research on subsidiaries and their management, and positions the present study in the field. Section 1.5 goes into the specific context of the present study, subsidiaries of Danish MNCs that are located in China. Section 1.6 defines the scope of the research. In Section 1.7, the research process is presented and Section 1.8 provides the structure of this thesis.

1.2 The central knowledge areas of this study

The knowledge areas central to this study are, operations management, international business/management and organization theory. The fundamental and overarching goal of any company is long time survival. Engaging in successful relationships with customers, in which outputs are exchanged for money, is one of the key mechanisms supporting that. Operations are the way in which products and services are developed, produced and delivered, and involve the transformation of human, physical and information resources (Karlsson, 2009). Operations encompass an integration of various functions, such as for example product/service development, purchasing, engineering, manufacturing, assembly and delivery, while also the interaction with the personnel, accounting/finance and marketing functions is important.

Operations management (OM) is an applied and cross-disciplinary field, which is

concerned with the strategy formulation and implementation and day-to-day management of operations. OM exists in and applies to all functional areas of a company/organization (Karlsson, 2009). International business is the exchange of goods and services among individuals and businesses in multiple countries through entities such as multinational corporations. International management is defined as the unidirectional crossing of national borders by factors of production (including knowledge) and firms and also the two-directional learning experienced by managers outside their home environments (Boddewyn et al., 2004). Organization theory is the study of organizational designs and structures, the relationship of organizations with their external environment, and the behavior of groups within organizations (e.g. Grant, 1996).

1.3 Globalization

Globalization is paramount to the development of nearly any nation's economy and society. Capital and labor, goods and services, and information and knowledge increasingly move across national borders. Globalization can be defined in several different ways. For example, Sassen (2006) writes that globalization includes a great variety of micro-processes that start to denationalize what had been established as national – whether capital, policies, political subjectivities, urban spaces, temporal frames, or any other of a variety of domains and dynamics. Palmer (2002) defines globalization as the reduction or elimination of state-enforced restrictions on exchanges across borders and the output of a progressive integrated and complex global system of production and exchange. Globalization began in the late 19th century, but its spread slowed down during the period from the beginning of the First World War until the third quarter of the 20th century. This slowdown can be ascribed to the inward-looking policies pursued by few countries in order to protect their industries. It was not until the 1960s that the term began to be generally used by economists and other social scientists.

However, empowered by developments in technologies of communication and transportation, corporate organization, and production processes (Dicken, 2003), the pace of globalization picked up rapidly during the fourth quarter of the 20th century (United Nations ESCWA, 2005). By the latter half of the 1980s, the term globalization was used extensively in the mainstream press. Four developments stimulated and advanced the further development of globalization (Dunning, 2000):

- Knowledge capitalism and a shift away from tangibles to intangibles as the

sources of wealth creation and comparative advantage.

- Alliance capitalism and the rise of co-operative ventures and alliances.
- A new global financial system and liberalization of markets.
- Emerging markets and the rise of newly industrializing economies (NIEs).

Globalization is not a new phenomenon. Global trading and supply chains, offshoring and international outsourcing, and political forces have changed the world permanently, with blessings and with curses. The pace of globalization, however, is still accelerating, and will continue to have a growing impact on business organizations and practices (Friedman, 2008). Within this trend, foreign direct investment (FDI) in most countries has paved the way for operations to inevitably become more international.

As trade barriers fell, transportation became easier, and communication technologies improved, operational advantages for global manufacturers increased (Ferdows, 1997b). As a result of that, large industrial companies started to offshore and disperse their subsidiaries all over the world to benefit from tariff and trade concessions, cheap labor, capital subsidies, and reduced logistical costs. In effect, the structure of global operations has changed greatly and it will continue to do so through, amongst others, the evolution of what has been termed the “*service*,” “*knowledge*,” or “*postindustrial*” economy in the leading industrialized nations, in the form of offshoring operations and knowledge assets to emerging countries (See [Table 1.1](#)). The next section presents the context of the present study.

1.4 The context of the study

1.4.1 Empirical context

China is the primary target location for Danish offshoring and it is an emerging growth market for Danish companies. [Table 1.1](#) shows the recent development in number of subsidiaries and employees.

Table 1.1: Danish subsidiaries and number of employees in China (source: Statistics Denmark, 2012).

Year	2007	2008	2009	2010	2011	Growth 2007-2011
Danish subsidiaries in China	217	228	272	320	353	62.7%
Employees	50318	51913	53502	64950	75280	49.6%

All subsidiaries analyzed in this study are located in China and all headquarters are in Denmark or another Western country¹. That limitation was made due to research funding considerations. The research is one of the projects of the Sino-Danish Center for Education and Research (SDC), one of whose aims it is to foster bilateral collaboration between the Center for Industrial Production, Aalborg University, Denmark and the National Institute for Innovation Management in Zhejiang University, China. [Table 1.1](#) shows that the number of Danish subsidiaries in China has increased with over 62% from 2007 to 2011. In the same period, the total number of employees increased with nearly 50%. In 2014, there were about 450 Danish MNC subsidiaries in China. The second motive for choosing China and Denmark as the main research context for this study is that the two countries offer a good basis for a comparative analysis of practices in the networks of companies located in both a developed and an emerging economy. At the national level, Denmark, just as many other developed market economies, is striving to stay ahead and compensate for the effects of globalization by becoming the "innovation powerhouse" of the world. On the other hand, the emerging economy context is represented by China, which is striving to move from being the "manufacturing power house" of the world to creating a foundation for growth and development based on innovative operations.

At company level, the players seek to establish positions where they can best exploit existing, and at the same time explore new, resources. Danish companies establish and operate their business in China to capture a share of this growth market (market seeking) and/or take advantage of cheap factor costs (efficiency seeking). In the meantime, Chinese companies are spreading their operations to countries in the traditional industrial "triad" of North America, Europe and Japan to capture a foothold in this upper market (market seeking) or to tap into the advanced technologies originating from the developed context (knowledge seeking). The outcome of these strategies is that industrial networks across, amongst others, Denmark and China become interwoven, with a huge potential for companies from both countries. However, realizing this potential requires dealing with acute challenges for years to come, including continuously improving and enhancing existing, and/or building new, capabilities.

¹ This research focuses on Danish companies, even if the HQ is outside DK.

1.4.2 Theoretical context

A subsidiary is an operational unit controlled by a multinational corporation (MNC) and situated outside the home country (Birkinshaw et al., 1998). Over the past few decades the management of subsidiaries has become a specific field of research within the fields of International and Strategic Management. Otterbeck (1981) was one of the earliest authors to define the field with the publication *The Management of Headquarters---Subsidiary Relationships in Multinational Corporations*. That edited collection contained contributions from authors such as Prahalad and Doz. Later, a collection by Ettemand and Dulude (1986) contributed with a focus on Canada's policies aimed at encouraging world product mandates. More recently, Birkinshaw and Hood (1998a) made a methodical effort to define the field. They defined three sub-streams on which Birkinshaw (2001) built with a four-part classification of the field's base literature, as well as three other categories of more recent developments. The four overarching research streams are identified as strategy-structure, headquarters-subsidiary relationships, subsidiary roles, and subsidiary development. A recent stream-subsidiary entrepreneurship is added. The present study is focused on understanding the development of capabilities that subsidiaries require in order to access and serve a local market and global/HQ demands. It therefore contributes on the most recent stream, namely subsidiary development.

1.5 Research objective

Considering the empirical and theoretical context of this study, it is evident that there is an increase in the number and size of Danish subsidiaries in [Table 1.1](#). However, it is less clear if and, particularly, how these subsidiaries and, for that matter, subsidiaries originating from other countries, develop their role in the MNC over time and develop the capabilities required to serve the local market as well as global requirements. Hence, it is relevant and timely to investigate how these subsidiaries adapt their operations in China in order to get beyond low cost production and start serving local market/global requirements. That leads to the overarching objective of this research, which is to propose significant insights into the process of server capabilities development of subsidiaries and the influence of context on that process.

The previous sections show that this subject can and has been studied from several different perspectives, including international business, international management, operations management, and organization design theories (in particular contingency

theory). These theories provide the basis for, but also define the boundaries of, this research. Subsidiaries of Danish MNCs operating in China provide the empirical basis of this research. China was chosen for two reasons. First, many Danish MNCs have offshored to China. Furthermore, research funding played a key role. The next sections describe the research process and the structure of this thesis.

1.6 Research process

The research process is presented in [Figure 1.1](#).

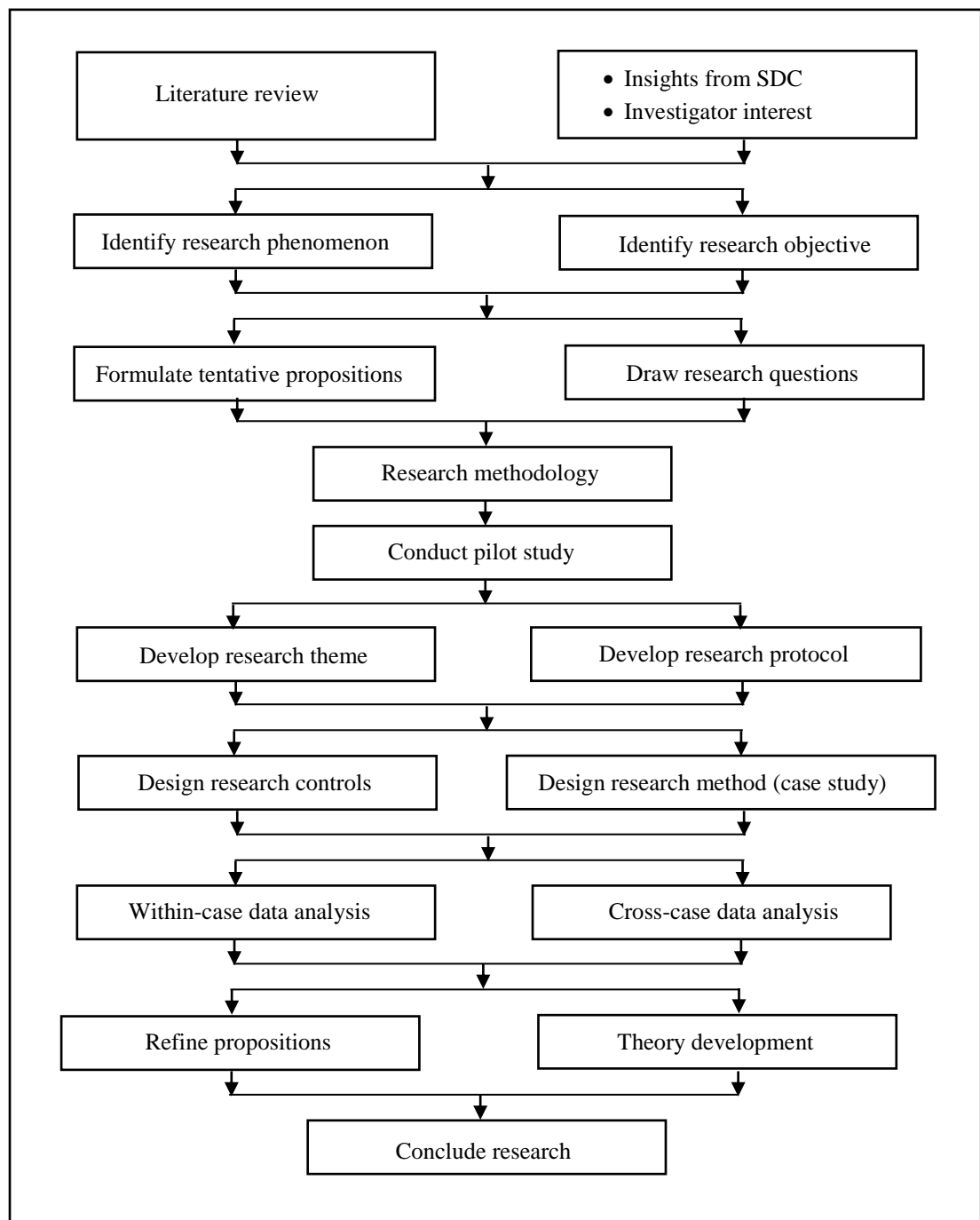


Figure 1.1: The research process

1.7 Structure of the thesis

This thesis focuses on server capability development and started with a review of international business, operations management and organization design theories. The review was aimed at acquainting the researcher with the state-of-the-theory, identifying problems (gaps, contradictions, reconciliations, anomalies, untested theories, generalizations) in the literature and based on that, developing research questions and propositions. Following that, eight Danish industrial plants (subsidiaries), a Danish Innovation Centre in China and three Chinese companies with subsidiary development initiatives in western countries were used as pilot cases to preliminarily identify relevant issues and explore potential answers. The theory review and empirical case studies provided preliminary insight into the key issues related to subsidiary-level capability development. Based on that and with strict adherence to the sampling criteria, the next step of the research focused on two in-depth case studies.

In line with the above research process, this thesis is structured as follows ([see Figure 1.2](#)). Chapter 1 outlines the background to this research, including a brief description of the empirical and theoretical context of the study; empirical justification of the research; research objective and the research process. Chapter 2 reviews relevant bodies of knowledge to identify the state-of-the-theory and problems (gaps, contradictions, reconciliations, anomalies, untested theories, generalizations) in the literature. Findings related to subsidiary development, including the strategic role of subsidiaries, capability development and subsidiary capabilities reported in the international business, operations management and organization design literature, constitute the core of the literature review. Aiming to bridge propositions identified from the literature review, the research objective is refined. Chapter 3 presents the research design for the study. In that chapter, some general notions about theory development and the case study approach are outlined.

Furthermore, detailed information is provided about criteria for selecting the cases, methods of data collection and analysis, and methods to ensure quality of the research. Chapter 4 provides extensive descriptions of the two main case studies dealing with the development of server capabilities. The chapter encompasses an overview of the two MNCs and their subsidiaries as well as description of the vital incidents in the subsidiaries' trajectories towards server capability. The main purpose of the chapter is to offer an overview of the two cases, to show the main results of the within-case

analyses and thus to provide the basis for the subsequent cross-case analysis, which is presented in Chapter 5. In addition to documenting the results of the cross-case analysis, Chapter 5 identifies observed cross-case patterns of server capability development, discusses these patterns in view of existing theory and develops propositions for further research towards development of theory on building server capabilities and beyond. Finally, Chapter 6 summarizes the findings of the research, outlines its contributions to theory and practice, states limitations to the study in terms of research design and empirical basis, and discusses directions for further work in the field of capability development. A conference paper, book chapter, and additional material used in the course of this study which did not find space in the body of the thesis, are presented in the Appendix.

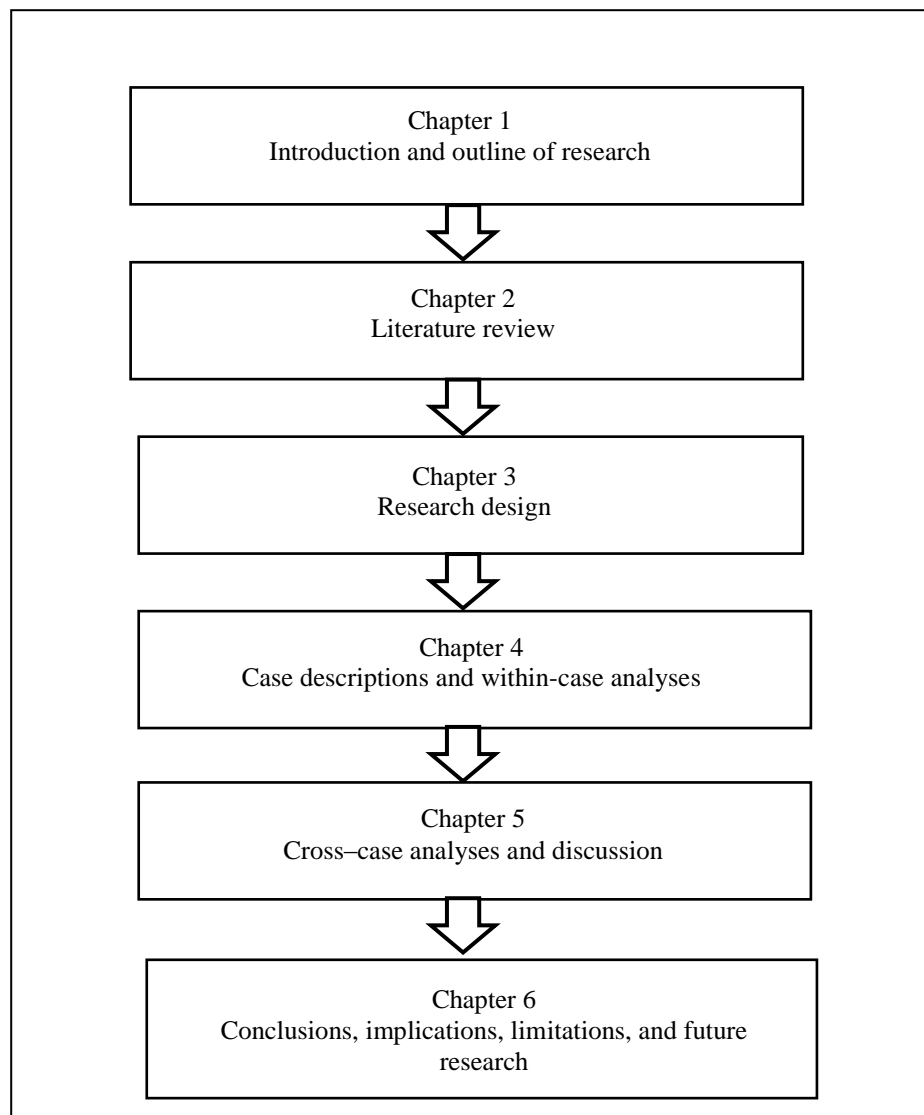


Figure 1.2: Structure of thesis

1.8 Chapter summary

Chapter 1 presents the knowledge areas central to this research, that is, international business/ management, operations management and organization design theories. Thereafter, globalization trends, the empirical and theoretical context of the study are established. Incidentally, it was shown that the operations of Danish MNCs are increasingly offshored to their subsidiaries in China and they are undergoing rapid role transformation, which have resulted in growing pressures on the capabilities required to serve the Chinese market and global/HQ demands. These developments pose a challenge of improving existing capabilities and building new capabilities in order to match the subsidiary role changes. That leads to the research objective, which is to propose significant insights into the process of server capabilities development of subsidiaries and the influence of context on that process. As such, facing increasing offshoring and outsourcing of operations, companies have to understand how to develop capabilities at their subsidiaries in order to serve a local market and global/HQ requirements. In addition, the structure of the research was presented in order to elaborate on how the research objective was investigated.

Chapter 2 Literature review

2.1 Chapter outline

Many works on subsidiaries have been on entry modes and their development in the long term. Most studies of subsidiary development have taken the HQ perspective. Not much is known about subsidiary development from the subsidiary perspective and that is what this thesis tends to explore. According to Eisenhardt (1989b: 536), “theory-building research is begun as close as possible to the ideal of no theory under consideration and no hypothesis to test”. Gummesson (2000), however, confronted this statement by questioning the need for continuously reinventing the wheel in the course of new studies and actually urged scholars to make use of existing theory also for qualitative research undertakings. As such, the process of reviewing existing literature considering a researcher’s area of interest is a daunting task that needs to be cautiously planned out. Rudestam and Newton (2007) suggested the use of a Venn diagram for delimiting specific knowledge areas relevant to the study and narrowing down on the field of enquiry.

According to these authors, the uncorrelated sections of each circle in the Venn diagram would represent distinct knowledge areas considered in a study and usually consist of literature expected to give readers background knowledge to each of the particular knowledge areas under consideration. The intersection between two knowledge areas represents relevant literature underlying important associations between the knowledge areas. In other words, the overlapping areas in the Venn diagram present admissible concepts or theories of how the knowledge areas relate. More often than not, the field of enquiry is found in the section where all the knowledge areas overlap (Rudestam and Newton, 2007). This approach was adopted in this chapter. As shown in [Figure 2.1](#), three broad knowledge areas were considered for the purpose of this thesis, namely: (a) strategic roles of subsidiaries; (b) subsidiary development and (c) organization design theories. These three broad knowledge areas were chosen because they are distinct and relevant in understanding how the changes in strategic roles of subsidiaries affect the development of such subsidiaries within a specific context. In [Section 2.2](#), fundamental concepts of strategic roles of subsidiaries are described together with different

classifications of strategic roles of MNC subsidiaries. Most emphasis is placed on subsidiaries that are accessing and serving local market demands and global/HQ requirements. [Section 2.3](#) presents the literature on subsidiary development. The drivers of subsidiary development such as HQ strategy, subsidiary choices and the local environment are presented and, their effects in the evolution of the subsidiaries are discussed. The different research streams in the field of subsidiary management are presented as a prelude to understanding the essence of subsidiary development. Common constructs used to explain subsidiary development components and relationships of these components with server capabilities are added. In [Section 2.4](#) an argument is presented on how organization design theories (with a focus on contingency and systems theory) could give a better understanding of server capability development.

Operations capabilities are presented in [Section 2.5](#). Dynamic capabilities are explored in relation to organization design theories in [Section 2.4](#). In [Section 2.7](#) capability development from internal building to external leveraging, and common constructs used to explain subsidiary development, are presented. In [Section 2.8](#), this study's field of enquiry is identified and described in terms of yet-to-be explored overlapping relationships between the knowledge areas considered in this study. In [Section 2.9](#), the literature analysis is discussed. A summary of the chapter and a brief introduction to the next chapter is presented in [Section 2.10](#).

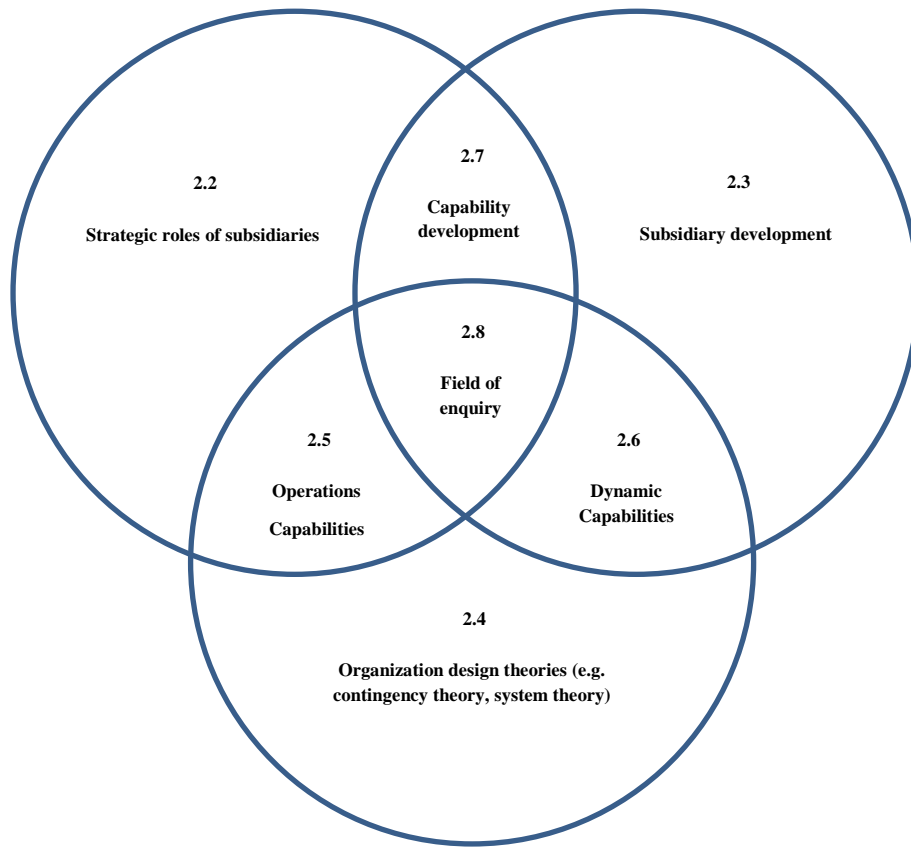


Figure 2.1: Venn diagram indicating the relevant literature considered.

2.2 The strategic roles of subsidiaries

The international strategy literature gives various typologies explaining the strategic roles of subsidiaries. Bartlett and Ghoshal (1989, 2002) suggested a model that differentiates between four generic strategic roles of subsidiaries of multinational companies (MNCs), as follows: the implementer, the black hole, the contributor, and the strategic leader. These four generic roles are different on two dimensions:

- The competence present in the subsidiary (in marketing, production, technology, or another area).
- The importance of the national environment in which the subsidiary operates to the company's global strategy.

Roth and Morrison (1992) argued that the strategic role of a subsidiary with a global mandate can to a certain degree be likened to the strategic leader. Jarillo and Martinez (1990) proposed a slightly different model that is comparable to the competence dimension considered by Bartlett and Ghoshal. They described their first dimension as “the degree of localization,” which indicates the extent to which activities such as R&D,

purchasing, production and marketing & sales are carried out in the subsidiary's country. Contrarily, the model differs on the second dimension, which the authors described in terms of the degree of integration of the activities. Thus, while in Bartlett and Ghoshal classification, the second dimension has an external focus, Jarillo and Martinez's classification has an internal focus. Moreover considering these two dimensions, Jarillo and Martinez recognized three different types of subsidiaries, that is: receptive, active, and autonomous subsidiaries. Taggart (1998) provided a fourth type of subsidiary to this classification, i.e. the quiescent subsidiary. Following the terms used by Bartlett and Ghoshal, Ghoshal and Nohria (1993) differentiated among four environmental conditions confronted by MNCs according to two dimensions (forces for global integration and local responsiveness, respectively). The four environmental conditions are:

- A *global* environment in which the forces for global integration are strong and those for local responsiveness weak.
- A *multinational* environment in which the forces for national responsiveness are strong and those for global integration weak.
- A *transnational* environment in which both contingencies are strong.
- A *placid international* environment in which both contingencies are weak.

Furthermore, they conceived MNC structures in terms of four patterns on the basis of dimensions of differentiation and integration. The four patterns are:

- *Structural uniformity*: A universal "company way" is adopted for the governance of all headquarters-subsidary relationships.
- *Differentiated fit*: Companies choose different governance modes to fit each subsidiary's local context.
- *Integrated variety*: A firm follows the pattern of differentiated fit but superimposes the obvious structured relationships with a dominant overall integrative mechanism.
- *Ad hoc variation*: There is neither a dominant integrative mechanism nor an explicit logic of differentiation to match local contexts.

Adopting four environmental conditions and four structural patterns as two dimensions, Ghoshal and Nohria further categorize their 41 case companies into 16 cells and suggested that companies positioning themselves in the diagonal cells, i.e., "ad hoc

variation — international,” “differentiated fit — multinational,” “structural uniformity — global,” and “integrated variety — transnational”, all of which depict a good environment-structure fit and,—should, on average, outperform other companies.

Although the models of subsidiary roles suggested above have greatly contributed to the understanding of MNCs’ global operations, it is Ferdows’ (1997b) model that will be adopted in this research. This framework essentially builds on Bartlett and Ghoshal (1989, 2002), one of the most influential frameworks in the subsidiary role literature, but takes an explicit Operations Management perspective, which is central to the present research. Furthermore, Ferdows’ framework has been tested extensively and its validity has largely been confirmed (e.g. Vereecke and Van Dierdonck, 2002; Maritan et al., 2004) and gained recognition (Meijboom and Vos, 2004; Vereecke et al., 2006; Feldmann and Olhager, 2013). Ferdows (1997b) addressed the specific roles of plants, and introduced a model based on the strategic reason for choosing a site and on the site’s competences. He identified the following types of subsidiaries/plants: offshore, source, server, contributor, outpost, and lead plant ([see Table 2.1](#)). As will be argued for later in more detail, it is based on these role types that this study adopts the definition of a server role, which is the role gained by a subsidiary that is set up to operate in, and accesses and serves, a local market. Consequently, server capabilities are the abilities needed for a subsidiary to perform its server roles effectively. Similarly, Fusco and Spring (2003) studied the “robust network” concept by considering seven international automotive assemblers with operations in Brazil adopting Ferdows’ framework. Their findings provide evidence that among the global assemblers, the world car strategy is dominant, leading to a concentration on the “source” and “lead” roles for individual subsidiaries, mostly integrated with radical logistical arrangements. That seems to support the argument for “robustness” rather than “operational flexibility”.

Table 2.1: Subsidiary/plant roles (source: Ferdows, 1997b).

Source	Lead	Contributor
Offshore	Outpost	Server

Access to low cost
production

Access to skills
and knowledge

Proximity to
market

Strategic reason for location

Meijboom and Voordijk (2003) used Ferdows' model to evaluate internal motivations related to why specific production facilities remain in Western Europe in spite of economic globalization. They investigated the effects of external influences (such as stage in the product lifecycle, technology, responsiveness, and transportation/logistics) on individual facilities that are disparate to these internal motivations. Considering these two aspects, they studied nine companies situated in the Netherlands but operating on an international scale, and concluded that facilities of high strategic importance are likely to have high expectations in the political/legal and macroeconomic environment and choose to stay close to the region of the market. Furthermore, facilities upstream of the major decoupling point in a supply chain appear to be more stable in terms of location than downstream facilities. Furthermore, these authors concluded that although so-called rational factors (e.g. cost and location of important markets) govern "green field" location decisions within already existing companies, specifically in decisions about the location of new business activities, historical coincidence often dictates where a company begins its activities. Theories from evolutionary economics could give insights into the relation between the history of a firm and decisions influencing its location (Lambooy and Boschma, 2003).

Meijboom and Vos (2004) described an instrument that allows the measurement of dynamics in the roles of subsidiaries in international networks. Beginning from Ferdows' framework, they developed a questionnaire allowing them to chart the evolution of subsidiary roles over time, and divided into questions pertaining to the primary location driver and questions to determine the technical activities. In addition, they gave a clear description and exact operationalization of "site competence" (see [Figure 2.2](#)), and tested their instrument using the Eastern European subsidiaries of four Dutch multinationals.

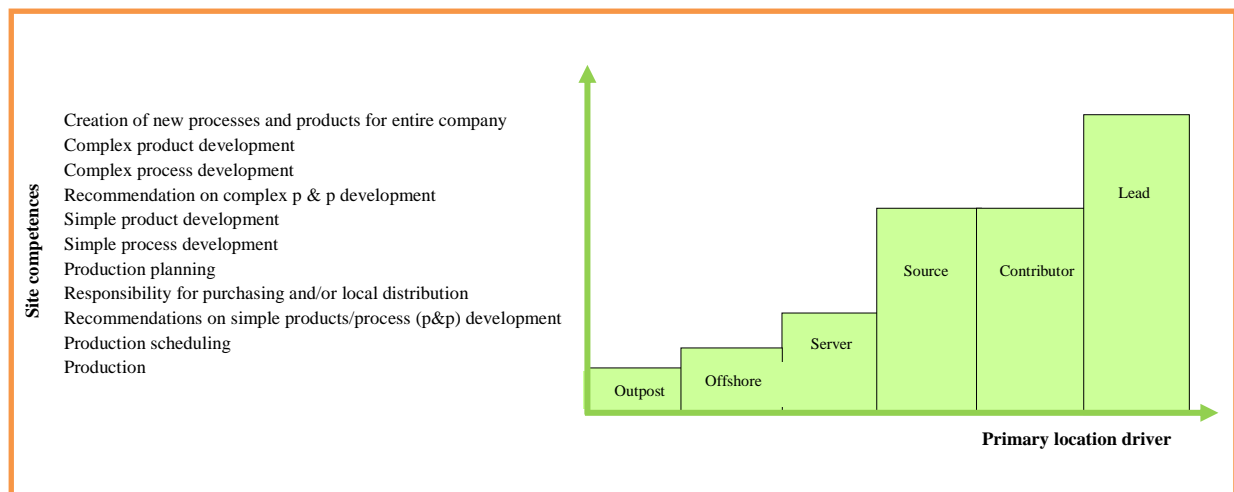


Figure 2.2 : Redefined dimensions of site competence (source: Meijboom and Vos, 2004).

Maritan et al. (2004) investigated whether subsidiaries in a multinational production firm with diverse roles have different degrees of autonomy regarding planning, production and control decisions. Building on Ferdows' framework, they empirically tested the proposition that the degree of managerial autonomy varies with respect to the strategic role of the subsidiary. They found evidence of differences in autonomy over planning, production and control decisions among subsidiaries with diverse roles in multinational firms, and argued that the lead subsidiary is a subsidiary with complete control over crucial decisions. Their tests recognized that lead subsidiaries do not have the high level of autonomy that Ferdows proposes, mainly because the need for them to coordinate activities across the network implies that they have less freedom in making independent decisions for their own operations.

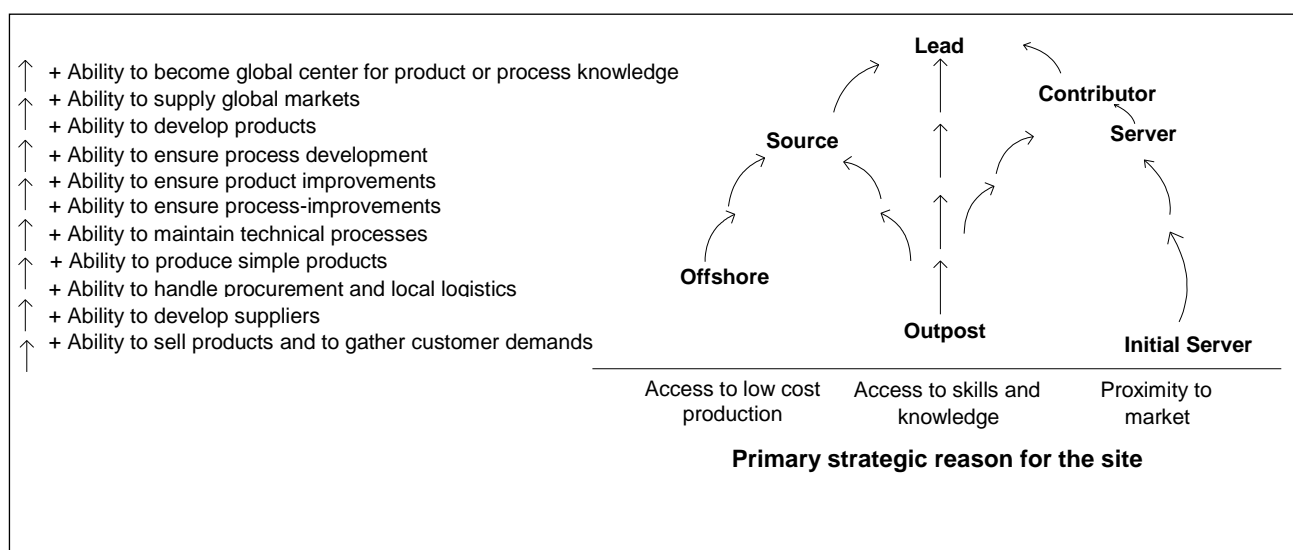


Figure 2.3: Capabilities along paths to higher strategic roles (adapted from Ferdows, 1997b).

[Figure 2.3](#) adapted from Ferdows (1997b), depicts trajectories of subsidiary role

changes with corresponding capabilities. In establishing a subsidiary to serve a local market, many factors could be responsible for exploiting and developing the subsidiary in the first place. Most foreign subsidiaries begin as an offshore, outpost or initial server subsidiary. Then, a company could choose to invest in a subsidiary's competence so as to allow the subsidiary to accomplish a more significant strategic role. Also, the market pressure to reduce time-to-market or to enhance customer service could stimulate local management to develop the local competence base. Furthermore, local managers may spontaneously seek to control a growing number of competencies and assets as well, because that improves their position and influence within the company, while lowering the vulnerability of the subsidiary (Vereecke and Van Dierdonck, 2002). Less successful subsidiaries may have no influence in the company due to factors such as pressure to reduce costs, which could lead to a concentration of production in a smaller number of subsidiaries, or the emergence of new opportunities (De Meyer and Vereecke, 1996).

Ferdows' model has gained academic recognition and much research takes it as a starting point - this research is no exception. Vereecke and Van Dierdonck (2002) proposed a tool for operationalizing the model, and test it empirically on a globally spread sample of subsidiaries. Their findings support Ferdows' model in most of its elements. However, their research also indicates three differences between the model and the empirical data:

- Although the model is considered to be useful for describing and assessing today's networks of subsidiaries, it is too limited to serve as a classification for new subsidiaries that could be added to the network.
- The role of the centers of excellence in a production network is not constrained to subsidiaries with know-how as the primary location advantage, but is also typical for subsidiaries taking market proximity as their primary location advantage.
- The perceptions of headquarters and subsidiary management regarding the subsidiary's strategic role could be different.

Kim et al. (2011) also argued that there is need for a modification of Ferdows' model in order to provide a framework to discuss the strategic roles of a client-following subsidiary in an emerging market. Hence, they replaced the outpost and lead roles by those of builder and follower, respectively. In his 1997 paper, Ferdows discusses the

concept of a “robust network,” which contains a high proportion of subsidiaries with enhanced strategic roles. Therefore, according to Ferdows (1997a), firms with robust networks are less probable to shift production between subsidiaries as a result of exchange rate variations and the like, because the benefits of embeddedness, fortitude, and long-term development of capabilities exceed the short-term advantages of exploiting a weak currency. The next section elaborates on subsidiary development and its drivers.

2.3 Subsidiary development

Subsidiary development is the process of strategic role changes (Hood et al., 1994). This section focuses on understanding the accumulation of research in that field by indicating four dominant research streams: strategy–structure, headquarters–subsidiary relationships, subsidiary roles, and subsidiary development. The evolution of each stream is presented separately to provide the ground for developing subsidiaries and to consider thoughts from different perspectives. [Figure 2.4](#) illustrates the classifications of the development of literature in the subsidiary management field as presented by Paterson and Brock (2002) except for the last one (the Local Market Era).

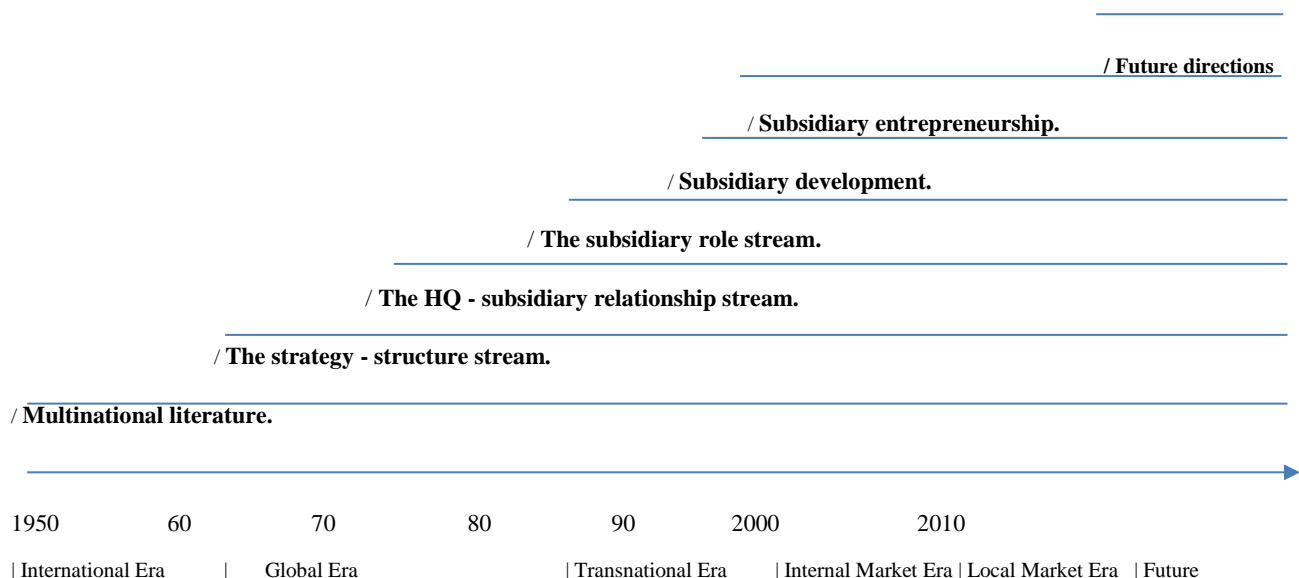


Figure 2.4: Development of the literature (adapted from Paterson and Brock, 2002).

Figure 2.4 is supported by this research because it fairly depicts phenomenal changes over time (see the abscissa axis) and it presents the accumulation of research and how each of the fields builds upon the work of the others, which provide the basis to

challenge assumptions and look at issues from new perspectives. The first stream of the subsidiary management field is presented below.

2.3.1 The strategy – structure stream

Insight into the relationship between strategy and structure in large corporations was developed through early work on organizational theory, with the main focus on more flexible structures as alternatives to the traditional hierarchy. Bartlett and Ghoshal (1989, 2002) indicated the “transnational organization”, which was proposed as the preferred design for the multinational corporation (MNC) and this conceptualization became one of the dominant foci of the stream. This stream also addresses the basic issue for an MNC’s decision making, namely the question on how to optimally configure foreign subsidiaries to exploit the potential benefits of global operations (Paterson and Brock, 2002; Kim et al., 2011).

2.3.2 The headquarters – subsidiary relationship stream

The headquarters – subsidiary relationship stream focuses on relationships that are governed by structural differentiation and/or by a combination of the three basic integrative mechanisms: centralization, formalization and normative integration (Chini et al., 2005), as well as on how to combine a portfolio of subsidiaries to maximize their value to headquarters (Picard, 1980). This stream was willing to accept that subsidiaries could have considerable autonomy and influence.

2.3.3 The subsidiary role stream

Considering the change in focus from headquarters to the subsidiary and the fact that subsidiaries may have unique resources and be able to operate with substantial autonomy implies that it could be essential to allocate them different roles within the whole organization (Bartlett and Ghoshal, 1986). See [Section 2.2](#) for further details.

2.3.4 The subsidiary development stream

World product mandate (WPM) authors such as White and Poynter (1984) stressed that a subsidiary’s main goal is to defend its own existence contrary to simply improving efficiency, as perceived by headquarters. Subsidiary development is characterized by strategic role changes (Hood et al., 1994), which implies a fundamental shift in the strategy of the subsidiary, not mere changes in scale (White and Poynter, 1984). A subsidiary changes its role through an incremental process of integrating various activities of the company (Malnight, 1995). The role a subsidiary plays could be assigned to it by the MNC’s HQ (Ghoshal and Nohria, 1989). But also be assumed by

the subsidiary in an attempt to gain a higher degree of autonomy needed because the subsidiary faces a local environment which is complex and volatile, or in which customer demands for localization are strong, so that local managers can bring their crucial local knowledge into play (Ghoshal and Nohria, 1989; Gates and Egelhoff, 1986). Hood and Taggart (1999) suggest similar factors affecting changes in a subsidiary's role: the task assigned by HQ, the subsidiary's choices, and local market forces.

Westney and Zaheer (2001) maintain that a subsidiary's role is formed through a combination of its own capabilities, decision-making by the MNC, and the resources that are available in the local environment. Similarly, Birkinshaw and Hood (2000) in their later work show that the parent's and the local environment influences a subsidiary's role, and that the added influence of subsidiary management cannot be ignored. Other authors conclude that, although HQ could play an important role in structuring the corporate network, competence largely develops autonomously through the parties' interactive problem-solving process, based on interdependence and their respective business interests (Forsgren et al., 2005; McEvily and Marcus, 2005). As such, a subsidiary increasingly builds up its position in the local environment and, in effect, its strategic role in the MNC, by acquiring alternative value-added resources with the help of external network partners (Schmid and Schurig, 2003). Nevertheless, existing studies are deficient in analyzing the role change of MNC subsidiaries for three reasons. First, most studies, in their effort to identify the source of the role change, focus on HQ's shifts in global strategy; only scant attention has been paid to how roles evolve over time as a subsidiary's capabilities develop. Consequently, existing studies offer limited insights into the dynamic and complex process of subsidiary development. Second, to the best of my knowledge, there are no studies considering subsidiaries of MNCs that are producing machinery or industrial components (ISIC Rev 3.1). Third, few studies have considered subsidiary development using a contingency perspective. Thus, there is insufficient insight in the way subsidiaries producing machinery or industrial components develop over time, and how that development is affected by HQ and subsidiary (strategic) decision-making, customer influences, and other external factors in the subsidiary's country of location.

The increasing focus on local drivers and the assumption that the subsidiary can develop the organization by leveraging on HQ support is shown in the progression to higher

strategic roles shown in [Figure 2.3](#). Some subsidiaries start with being an initial server selling only products from headquarters and collecting information on customer demands. Such information from customers helps headquarters to decide where to assemble/produce and take the measures such as using people mobility or recruiting local employees with technical skills, needed to be able to produce simple products. Subsequently, such a subsidiary could climb the ladder and adopt the capabilities needed to assume higher-level strategic roles, as depicted in [Figure 2.3](#) until they have developed and/or acquired the ability to supply global markets, which is what Ferdows termed a contributor (as in the case of the two main case subsidiaries' in this research) or even the ability to act as a global center of product or process knowledge – a lead plant according to Ferdows.

2.3.5 Drivers of subsidiary development

Birkinshaw and Hood (1998b) presented a model of subsidiary development emphasizing three main categories of drivers. The first category includes the multinational itself, changes in the global environment, resource availability, global restructuring, and competition from other subsidiaries. Factors within the MNC's area of influence comprise changes in the charter assigned to the subsidiary, its perceived capabilities, the technological development that it is designed for, and HQ's tendency to choose central control (Bartlett and Ghoshal, 1986). The second category is subsidiary choice (Birkinshaw et al., 1998), which includes subsidiary-management's desire to increase autonomy, and defend its own existence to headquarters and its country. The third is the local environment, which may constrain but also provide opportunities to the subsidiary, and includes direct and indirect influences from the government and regional authorities as well. Birkinshaw and Hood (1998b) indicated that these three basic mechanisms interact in a cyclical process of action and reaction to influence subsidiary development. Usually, perspective affects the factors that determine subsidiary development. For example, Brock (2000) emphasized that researchers from larger countries are more likely to view developments from the corporate standpoint, while those from smaller economies seem to be more interested in subsidiaries. Studies drawing from the corporate managerial perspective seem to accept that parent company managers are the most important drivers (Chang, 1995; Malnight, 1996). Studies conducted from a subsidiary perspective tend to emphasize subsidiary initiative (Birkinshaw, 1997).

2.3.6 The subsidiary-entrepreneurship stream

Entrepreneurship in MNCs is associated with subsidiary initiatives. To cite Birkinshaw (1997, p. 207): ‘An initiative is essentially an entrepreneurial process, beginning with the identification of an opportunity and culminating in the commitment of resources to that opportunity’. This stream adopts the subsidiary perspective that subsidiaries have the potential for independent and entrepreneurial behavior and are not just subordinate units of their parent MNCs (Birkinshaw et al., 2005).

2.3.7 Hierarchical to heterarchical standpoint

The development of the five streams of literature on subsidiary-management has been presented. Birkinshaw (2001) identified two changes in perspective that underlie the emergence of later streams: the change from a hierarchical to a heterarchical standpoint of the firm, and the change in perspective from MNC viewpoint to the subsidiary viewpoint. Each of these represents a willingness to tackle the problem of subsidiary management in a complex but more realistic manner. This research adopts the subsidiary perspective in order to make a rational contribution to the subsidiary development stream. The following section looks at the meaning and role of subsidiary autonomy, a crucial factor in heterarchical contexts.

2.3.8 Autonomy

Birkinshaw (2001) revealed a link between the increasingly heterarchical and subsidiary focused perspectives and the perception of autonomy, with reference to the diverse views on autonomy through the decades and between streams. On the one hand, investigation from the MNC perspective clearly has a tendency to consider issues of efficiency and centralization (e.g. Fayerweather, 1969). On the other hand, considering issues from the subsidiary viewpoint is likely to reveal longer-term development aims, regional impacts and a desire for autonomy (Birkinshaw et al., 1998; Hood and Taggart, 1999). Thus, subsidiaries in most cases seem to be autonomy-seeking, while HQ tends to push for more centralization. Furthermore, autonomy was argued not only to play a role in improving local responsiveness but also in internal activities aimed at creating an internal market (Birkinshaw and Fey, 2000). Autonomy was proposed to be both a requirement and a suitable result of subsidiary development (Birkinshaw and Morrison, 1995; Forsgren, et al., 1992; Hood and Taggart, 1999). Similarly, Birkinshaw and Hood (1997) suggested that autonomy was beneficial not only to the subsidiary but to headquarters as well.

2.4 Organization design theory

Organizational design theory explains and predicts an organization's composition and behavior (Grant, 1996). To better explain organization design theory and its relationship to understanding subsidiaries, it is approached from two angles. First, the several concepts of subsidiaries are discussed in relation to systems theory. Subsidiaries are organizations with the potential to take initiatives, develop value-adding activities and implement autonomous decision making (Ambos et al., 2006; Adeyemi et al., 2014). Organizations are complex (Camarinha-Matos and Afsarmanesh, 2007; Camarinha-Matos et al., 2008; Levy, 1994), open, dynamic and, non-linear systems that are able to perform multiple interactions and functions (Thietart and Forgues, 1995). Second, contingency theory and systems theory are both examined in order to help describe the complexity of systems in relation to a particular context. These two bodies of theory present significant insights into how organizations are composed, integrated and work (Thietart and Forgues, 1995).

2.4.1 Systems theory

A system is an entity that comprises different parts confined by universal similarities, rules or aspirations that interact with each other and/or function as a whole (Bechtold, 1997). Hence, systems theory explains systems' interrelationships, interdependence and complexity (Bussolari and Goodell, 2009). In most cases, system theory is used to present a blueprint of how systems formulate adaptive control mechanisms in order to preserve a system's behavior relative to some desired goal (Dooley, 1997). Caddy and Hellou (2007) represented Yourdon's (1989) four assumptions of systems theory concerning information systems. The assumptions are that:

- a) The more specialized or complex a system, the less adaptable it is to a dynamic environment.
- b) The larger the system, the more resources are required to support it, with the increase being non-linear instead of linear.
- c) Systems often contain other systems or are themselves parts of larger systems.
- d) Systems grow over time, both in terms of size as well as structural complexity.

Just as Caddy and Hellou (2007) argued that these four assumptions are applicable to supply chain management, they can be used to better understand the concept of server capability development as well.

2.4.2 Contingency theory

Contingency theory emerged at the end of the 1950s as an attempt to understand the association between the firm's internal and external context, and its structure. The basic assumptions of contingency theory are:

1. There is no one best way to organize a firm.
2. Not all ways of organizing a firm are equally effective.
3. The best way to organize a firm depends on characteristics of the internal and external context of the firm.

These assumptions challenged earlier theories that had tried to identify general principles that were applicable at all times and places. It was justified that earlier theories neglected the immense diversity of existing organizational forms and failed to identify the great variety of tasks undertaken by organizations. However, of equal importance is the assumption that organizing matters: depending on the environment and the task, one form of organization can be much more suitable than another. The fundamental idea is that attaining high performance requires a fit between the context and how the activities are organized within the firm. Another (implied) assumption made in contingency theory is that fit is achieved by the firm adapting itself to its context, instead of vice versa (Forsgren, 2008). That largely portrays the relevance of building server capability.

2.4.3 The MNC as a differentiated network

Ghoshal and Nohria (1997) presented the MNC as a differentiated network by arguing that the MNC has different subsidiaries operating in different national environments. A model that does not distinguish between the various control linkages of a subsidiary's context, "does not accurately represent the realities of the business world" (Ghoshal and Nohria, 1997, p. 4). The concept of differentiated network could be used to stress how to organize the MNC in terms of distributed resources linked through various types of relationships:

1. The "local" linkages at the level of each national subsidiary.
2. Linkages between HQ and the subsidiaries.
3. Linkages between the subsidiaries themselves.

Ghoshal and Nohria (1997) applied contingency theory by adopting two contextual factors indicating the differences between subsidiaries' environments: (1) the degree to which the subsidiary's environment is complex in terms of a high level of competition

and the rate of product and process innovations in the local industry in which the subsidiary operates; and (2) the importance of the physical and managerial resources that the individual subsidiary controls. They categorize the organizational design factors into three factors: (1) centralization, defined as the degree of formal autonomy the subsidiary enjoys concerning its own strategy and policy; (2) formalization, that is, the extent to which manuals, standing orders and standard operating procedures are employed by HQ to manage the individual subsidiary; and (3) shared values, denoting the degree to which a subsidiary aligns with the general goals and management values of the parent company.

As Forsgren (2008) puts it, the fundamental idea of a differentiated network approach is that HQ should treat the subsidiaries differently. Hence, an individual fit is sought in individual headquarter-subsidiary relationships instead of an overall fit. Instilling shared values among the managers of subsidiaries is justified to minimize divergent interests, stress mutual interdependence and achieve to consensus. That is attainable through the socialization of managers to ensure that they adopt a set of goals that directs the perspective and behavior of different subsidiaries. In view of that, HQ is supposed to promote (or perhaps demote) the shared values of managers through the implementation of mechanisms such as selection, training and rotation of managers, stimulation of open communication between HQ and the subsidiaries, among the subsidiaries and between the different functions of a subsidiary as well. Shared values are the glue that keeps the MNC together. Similarly, networking, i.e. all manners of vertical and horizontal contacts between units, is closely linked to the shared values concept. Ghoshal and Nohria (1997) present networking as the time spent on inter-unit committees, teams, task forces, meetings and conferences, as well as the time spent by subsidiary managers visiting HQ. They argue that the concept of shared values involves beliefs and goals and networking is the mechanism through which the shared values are attained. Meanwhile, increased shared values facilitate the communication between units, stimulated by networking (Forsgren, 2008).

Generally, in a differentiated network, multinational personal networking leads to more shared values which, together with a high fit in terms of centralization and formalization, leads to better performance. The emphasis on networks as a communication device and on the importance of individual subsidiaries and their different contexts makes the perspective very similar to Hedlund's (1993) perspective of

the MNC as a heterarchy, and Bartlett and Ghoshal's (1997) concept of "transnational solution". The latter perspectives emphasize the importance of inter-unit communication as an integrative device. Forsgren (2008) argues that personal network is the overriding solution to the problem of managing to adapt to local market conditions and achieving integration of operations and knowledge across units without leaning (too much) on centralization and formalization. Ghoshal and Nohria (1997, p. 152) point to the "impossibility of building a completely connected network across all the individuals in the organization". Although the differentiated network approach is a story regarding the diversity between subsidiaries in terms of their local environments, it is also a tale of how the differences are handled through a common communication network and shared values. In that way, the term "differentiated network" is somewhat misleading. It is not the network that is differentiated. Rather, the network is assumed to be the glue that keeps the differentiated activities connected to each other and fairly integrated (Forsgren, 2008).

2.4.4 Relevance of contingency theory and systems' theory to this study

The researcher considers both systems theory and contingency theory to be relevant to server capability development for the following reasons. First, systems theory explains how different units in an organization are connected (Bechtold, 1997; Dooley, 1997) while contingency theory stresses the need for a fit between the context of, and how activities are organized within, firms (Ghoshal and Nohria, 1997; Forsgren, 2008), including subsidiaries. Second, building server capabilities and beyond is a by-product of a firm's self-adjusting capacity to operate, predict opportunities, adversities and threats to its survival (McManus et al., 2007; Folke et al., 2002), while leveraging on existing competencies, or to develop new ones by including acquired and transformed knowledge into its operations (Zahra and George, 2002). Both contingency theory and systems theory help operations managers to better understand, and concentrate on, interfaces between the external environment, the subsidiary as a whole and its functional units (Cohen and Levinthal, 1990; Grant, 1991; Levinson and Asahi, 1995). The next section presents core capabilities and their relation to server capability development.

2.4.5 Core capabilities

Leonard-Barton (1992) defined a core capability as the knowledge set that differentiates and renders a competitive advantage. She presented four dimensions in relation to this

knowledge set with its content embodied in (1) *knowledge and skills of employees* and embedded in (2) *technical systems* and (3) *managerial systems* directed by the processes of knowledge development and control. The fourth dimension is the *values and norms* connected with different types of embodied and embedded knowledge and the processes of knowledge development and control. The first dimension, knowledge and skills embodied in people, is the one most often connected with core capabilities (Teece et al., 1990) and clearly quite relevant to new product development. This knowledge/skills dimension encompasses firm-specific techniques, scientific understanding and general craftsmanship and skills. The second, knowledge embedded in technical, i.e. physical production or information, systems, evolves from years of accumulating, codifying and structuring the tacit knowledge and experience in many people's heads, resulting in the whole being greater than the sum of its parts. This knowledge constitutes both information (e.g. a data base of product tests conducted over decades) and procedures (e.g. proprietary design rules.) The third dimension, managerial systems, represents formal and informal ways of creating (e.g. through sabbaticals, apprenticeship programs, or networks with partners) and controlling knowledge (e.g. incentive systems and reporting structures). Infused through these three dimensions is the fourth, culture-related, dimension, which, with few exceptions (e.g. Barney, 1986), is usually separated from the others or neglected. This dimension concerns the value assigned to the content and structure of knowledge (e.g. chemical engineering vs. marketing expertise; "open-systems" software vs. proprietary systems), means of collecting knowledge (e.g. formal degrees vs. experience) and controlling knowledge (e.g. individual empowerment vs. management hierarchies). Even physical systems embody values. For instance, organizations that have a strong tradition of individual vs. centralized control over information prefer an architecture (software and hardware) that allows much autonomy at each network node.

The four dimensions could be relevant descriptors of plant capability, including server capability. [see Figure 2.5](#). In addition, formal partnering or informal connecting with external sources, e.g. governmental agencies, investors, suppliers, customers, other organizational partners, may provide access to resources and capabilities that a subsidiary does not own inside its organizational boundary (Baum et al., 2000; Niosi, 2003; Saxenian, 1994). Being a member of a network or cluster facilitates the access, acquisition, and sharing of vital resources, while promoting specialization at the same time, which enhances (server) capability development by leading to more focused

expertise development.

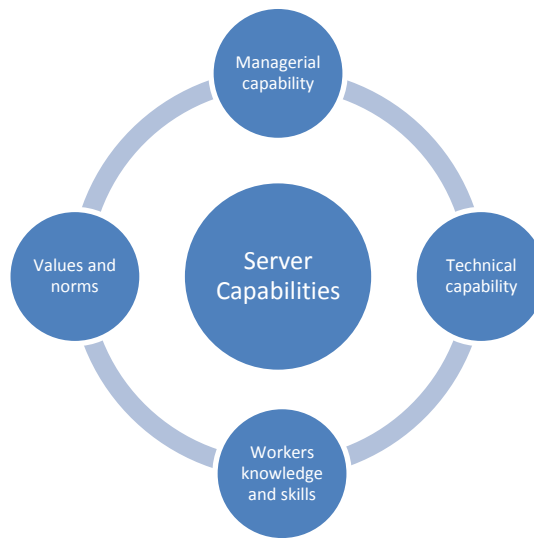


Figure 2.5: Possible dimensions of server capabilities.

They identify four types of capabilities: special relationships, business-specific competences, growth enabling skills, and privileged assets (Delany, 2000). Adopting this wider definition of capabilities, suggests that a number of key factors are crucial for general managers in moving through subsidiary evolution stages. Special relationships with the market decision makers, -both internal and end-market customers, dependent on circumstances, need to be established. Such relationships are significant since without them it is not possible to influence head office decision makers, (Schilit, 1987; Dutton and Ashford, 1993; Delany, 2000) but they are also important in providing the subsidiary with insight into emerging opportunities for added value. Relationships with the internal market are in the first place built on the basis of credibility in performing the existing mandate to a high standard, and marketing that performance. However, credibility alone does not sustain relationships. It is necessary for the subsidiary managers to set aside time to engage with both internal and external customers. Many general managers spent a very high amount of their time in building relationships and marketing the subsidiary so as to extend its role. In the next section, the concept of operations capabilities is discussed.

2.5 Operations capabilities

A capability is the strength or proficiency of a bundle of interrelated routines for performing specific tasks (Peng et al., 2008). Capability research began to thrive with the shift of the research focus on strategy, through studies of the impact of the external environment on firms, to the effects of internal unique resources in the 1990s, which promoted theory development based on the resource-based view of firms (RBV). The

RBV defines capabilities as the services that the resources can render and the result of the way in which resources are used (Penrose, 2009). RBV scholars stress firm-specific resources and capabilities as a fundamental source of competitive advantage (Barney, 1991; Penrose, 2009), and suggest that isolating mechanisms emanating from the nature and the use of resources generate economic rents (Rumelt, 1991). Other scholars have expanded the RBV beyond an organization's boundary and examined network resources as a source of competitive advantage (Gulati, 2007; Lavie, 2006). Some scholars (Priem and Butler, 2001) have questioned if unique and valuable resources are sustainable, due to the market imperfection of capabilities. The RBV does not provide answers on how firms develop and sustain their competitiveness through the development of resources and capabilities over time.

The RBV has been extended to add some dynamic features to a model of capability lifecycle. Helfat and Peteraf (2003) suggest that in a lifecycle, a capability goes from founding through development to maturity, from which the capability could be replicated, renewed, or conserved and replaced by a new one. The lifecycle model only expresses a macro-level evolution of a particular capability, but does not account for the mechanisms and processes in the initiation and development of this capability. However, it presents the role of founding endowments (founding management team and initial strategic choice). These founding endowments deeply affect the initial competitive position, and determine the "path" and the choice of numerous ways of doing things (processes) in the organization.

The key concepts for studying capabilities include "resources", "routines", and "capabilities" (Grant, 1991; Ray et al., 2004; Teece et al., 1997). The management literature is replete with definitions of these terms, and clear conceptual differences can be drawn between them. Resources are tangible and intangible firm assets that could be put into productive use (e.g., Amit and Schoemaker, 1993; Grant, 1991). Routines are organizational processes in which resources are applied to achieve desired outcomes (Grant, 1991; Teece et al., 1997). And capabilities are depicted as high-level routines or bundles of routines (Collis, 1994; Winter, 2003; Zollo and Winter, 2002). Peng et al. (2008) propose that with reference to resources, routines and capabilities are embedded in the dynamic interaction of numerous knowledge sources and are more firm-specific and less transferable and, hence, leading to competitive advantage. For example, a firm may have engineers, databases, and financial and physical resources to carry out new

product development projects. However, to develop superior new product development capability, effective routines need to be established to enable the dynamic information and knowledge exchange among individual sources of knowledge (Kusunoki et al., 1998).

Table 2.2: Description of operations capabilities and related terms (adapted from Peng et al., 2008).

Term	Definition	Attributes/operationalization
Competitive capabilities	... actual or realized competitive strengths with respect to primary competitors (Rosenzweig and Roth, 2004)	Conformance quality, delivery reliability, volume flexibility, low cost
Cumulative capabilities	... numerous dimensions of manufacturing performance (e.g., Nakane, 1986; Ferdows and De Meyer, 1990) ... performance in various manufacturing performance dimensions (Flynn and Flynn, 2004)	Conformance quality, delivery dependability, speed of new product introduction, unit manufacturing cost (Ferdows and De Meyer, 1990) Conformance quality, on time delivery, cycle time, speed of new product introduction, volume flexibility, product mix flexibility, unit manufacturing cost.
Competence	... competitive priorities internal to manufacturing operation (Corbett and Van Wassenhove, 1993). ... bundle of aptitudes, skills, and technologies that the firm performs better than its competitors, that is difficult to imitate and provides an advantage in the market place (Coates and McDermott, 2002)	Cost, time, quality
Competitive priorities	... choice to achieve one or more key manufacturing capabilities (Kathuria, 2000; Noble, 1995; Ward et al., 1998; Boyer and Lewis, 2002)	Quality, delivery, cost, flexibility (Boyer and Lewis, 2002) Quality, dependability, delivery, cost, and flexibility (Noble, 1995) Cost, quality, delivery, flexibility (Ward et al., 1998)
Core manufacturing capabilities	... fundamental proficiency in manufacturing (Swink and Hegarty, 1998)	Improvement, innovation, integration, acuity, control, agility, responsiveness
Dynamic manufacturing Capabilities	... ability to generate multiple competitive capabilities simultaneously through a time-based, aligned portfolio of structural, infrastructural and integration choices that promotes accelerated learning and builds economies of knowledge (Hirasawa et al., 1992)	
Manufacturing capabilities	... strengths in key manufacturing performance dimensions such as cost, quality, and time (Safizadeh et al., 2000; Skinner, 1969, 1974; White, 1996)	Conformance quality, delivery dependability, delivery speed, product flexibility, cost (White, 1996)
Production competence	... strengths and weaknesses in certain key performance indicators (Cleveland et al., 1989) ... degree of supporting manufacturing performance to the strategic priorities of the firm (Vickery et al., 1993, 1994)	Adaptive manufacturing (product mix, flexibility and volume flexibility), cost effectiveness of labor, delivery performance, logistics, production economy of scales, process technology, quality performance, throughput and lead time, vertical integration Volume flexibility, process flexibility, production lead time, delivery dependability, conformance quality, low production cost, delivery speed, product durability, product reliability, and product flexibility (Vickery et al., 1994)

Operations capabilities have various meanings to OM researchers as described in [Table 2.2](#), and traditional ways to studying operations capabilities involve assessing operational performance (Ward et al., 1998), distinguishing the relationships among different performance dimensions (Nakane, 1986; Ferdows and De Meyer, 1990), and understanding the linkage between operational performance and business and organizational strategy (Vickery et al., 1993). Operations capabilities are important in serving a local market and in appraising the operational performance of a subsidiary.

2.6 Dynamic capabilities

A dynamic capability is the firm's potential to systematically solve problems, formed by its tendency to sense opportunities and threats, to make timely and market-oriented decisions, and to change its resource base (Barreto, 2010). Similarly, dynamic capabilities can be defined as "the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments." (Teece et al., 1997; p. 516). Several main elements that feature the major theoretical underpinnings of dynamic capabilities (nature, role, context, creation and development, outcome, and heterogeneity) are considered by Barreto (2010). First, the nature of the concept is conceived as an "ability" (or "capacity"). As such, the resource-based view (RBV) is expanded by suggesting a special kind of capability. Second, the desired end (i.e. the role) of this special capability is to integrate (or coordinate), build, and reconfigure internal and external capabilities. In view of that, it affirms the roles of routines and path dependencies in building capabilities. Third, concentration is on a specific type of external context, namely, fast changing environments. Fourth, it is accepted that dynamic capabilities are normally developed rather than acquired and that their formation and evolution are embedded in organizational processes that are shaped by a firm's asset positions and the evolutionary paths assumed in the past.

Table 2.3: General descriptions of dynamic capabilities (authors / descriptions) (adapted and elaborated from Barreto, 2010).

Authors	Dynamic capabilities allow a firm to ...
Teece and Pisano (1994)	... create new products and processes and respond to changing market circumstances
Teece et al., (1997)	... integrate, build, and reconfigure internal and external competences to address rapidly changing environments
Eisenhardt and Martin (2000)	... integrate, reconfigure, gain, and release resources and to match and even create market Change
Teece (2000)	... sense and then seize opportunities quickly and proficiently
Zollo and Winter (2002)	... generate and modify its operating routines in pursuit of improved effectiveness
Winter (2003)	... extend, modify, or create ordinary capabilities
Zahra et al., (2006)	... reconfigure a firm's resources and routines in the manner envisioned and deemed appropriate by its principal decision maker(s)
Helfat et al., (2007)	... purposefully create, extend, or modify its resource base
Teece (2007)	... (a) sense and shape opportunities and threats, (b) seize opportunities, and (c) maintain competitiveness through enhancing, combining, protecting, and, when necessary, reconfiguring the business enterprise's intangible and tangible assets
Barreto (2010)	... systematically solve problems, formed by its propensity to sense opportunities and threats; to make timely and market-oriented decisions, and to change its resource base.

Fifth, it is stressed that, similar to resources and capabilities considered within RBV, dynamic capabilities are heterogeneous across firms because they rest on firm-specific paths, unique asset positions, and distinctive processes. Finally, sustained competitive advantage (or success vs. failure, or value creation) is established as a direct result of dynamic capabilities. Conceptualizations of dynamic capabilities differ significantly in terms of the nature, specific role, relevant context, creation and evolution mechanisms, types of outcomes, heterogeneity assumptions, and purposes. A brief overview of the major different conceptualizations is presented in [Table 2.3](#).

2.6.1 Nature

Dynamic capabilities have been defined as abilities (or capacities) but also as processes or routines. Following Teece et al. (1997), some authors have thought out dynamic capabilities to be an ability or capacity (e.g., Helfat et al., 2007; Teece, 2000, 2007;

Winter, 2003; Zahra et al., 2006). In their initial proposal, Teece et al. (1997) explained the word *capabilities* to stress the key role of strategic management. In Helfat et al.'s (2007; p. 4) definition, the use of the term *capacity* was proposed to refer not only to "the ability to perform a task in at least a minimally acceptable manner" but also to its repeatability (to differentiate it from a onetime action). Eisenhardt and Martin (2000) introduced dynamic capabilities as particular and identifiable processes, whereas Zollo and Winter (2002) presented dynamic capabilities as learned and stable patterns of collective activity, closely following an initial definition of routines as "regular and predictable behavioral patterns" inside the firm (Nelson and Winter, 1982, p. 14). In addition, Eisenhardt and Martin (2000) established that the nature of effective dynamic capabilities differs according to market dynamics, from detailed, analytical routines essentially relying on extant knowledge to simple, experiential routines essentially relying on situation-specific, new knowledge. Thus, abilities, capacities, processes or routines are pointers to the nature of capabilities in a dynamic environment.

2.6.2 Specific role

Dynamic capabilities are associated with changes in the key internal components of the firm such as resources and capabilities (e.g. Eisenhardt and Martin, 2000; Helfat et al., 2007; Teece et al., 1997; Winter, 2003), operating routines (Zollo and Winter, 2002), and resources and routines (Zahra et al., 2006). Some studies introduced the concept as a capacity (Helfat et al., 2007) or as the routines (Eisenhardt and Martin, 2000) by which an organization alters its resource base. Some researchers chose a two-level hierarchy, discerning between "zero-level" capabilities and "higher-level" capabilities. "Zero-level" capabilities represent "ordinary" capabilities, that is, those that allow a firm to "make a living" in the short term (Winter, 2003), or "substantive capabilities," that is, those applied to solve a problem (Zahra et al., 2006). Dynamic capabilities, in contrast, are "higher-level" capabilities that operate to change ordinary (Winter, 2003) or substantive capabilities (Zahra et al., 2006). Similarly, Zollo and Winter (2002) distinguished two types of routines: those utilized in the operational activity of the firm (the "operating routines") and those committed to the modification of operating routines (the "dynamic capabilities").

Makadok (2001) distinguished two rent-creating abilities, those associated with resource picking, which he related to the RBV, and those linked to capability building, which he associated with the dynamic capability framework. Several studies have added

supplementary components to what are elsewhere regarded as the constituents of dynamic capabilities. Schreyögg and Kliesch-Eberl (2007), for example, presented the consideration of “capability monitoring,” a separate organizational function removed from the operational level and meant to observe both a firm’s capabilities utilization and development and the firm’s external environment. Teece (2007) proposed that, in addition to the resource reconfiguring capability, two other “categories” of capabilities should be considered: the capability to sense and structure opportunities and threats and the capability to grab opportunities. In summary, the set of dynamic capabilities proposed in the literature include the capabilities to monitor (observe, sense) and structure internal and external developments (threats, opportunities) and the capabilities to grab opportunities and, one could argue, deal with threats and change (modify) ordinary and substantive capabilities adequately.

2.6.3 Relevant context

Crucial variation exists in literature concerning the sort of external environments that dynamic capabilities are more suited to. Researchers within the field are clearly divided among those that attribute the concept to very dynamic environments, those who assume varying degrees of environmental dynamism, those who accept its relevance in both stable and dynamic environments, and those who directly neglect the characteristics of the specific environment. The original proposal by Teece et al. (1997) revealed the reality of dynamic capabilities and the presence of rapidly changing environments. Teece (2007) refined that link by justifying the importance of the concept for environments that are open to international commerce, where technical change is fundamental, markets for goods and services are advanced, technological and managerial knowledge are not well developed, and regulatory or institutional blows happen. China, the focal context in this research is an example in place – dynamic, i.e. changing rapidly in all possible respects and still underdeveloped in many others. Clearly, companies, including subsidiaries, operating in such a context need all the dynamic capabilities identified in Section 2.6.2.

2.6.4 Creation and development mechanisms

Some mechanisms that guide the genesis and development of dynamic capabilities have already been presented. The purpose of learning mechanisms in the creation and development of dynamic capabilities was well established by Zollo and Winter (2002). These authors also, established the significance of more deliberate cognitive processes

such as knowledge articulation (e.g. through collective discussions or performance assessment processes) and knowledge codification (e.g. written tools about the implications of existing specific routines) to complement the more semi-automatic experience accumulation. They posited that the more deliberate mechanisms are more effective in building dynamic capabilities than semi-automatic mechanisms when the frequency of main experiences is lower, the heterogeneity of task experiences is higher, and action performance causal ambiguity of the task is higher (Barreto, 2010). In line with the thoughts of Zollo and Winter (2002), Zahra et al. (2006) contributed various other mechanisms for the genesis and development of dynamic capabilities, namely, trial and error, improvisation and imitation. They argued that learning from experience is more suitable for established firms, trial and error, and improvisation processes are a better possibility for new firms, while both types may benefit from imitation.

2.6.5 Heterogeneity assumptions

Two diverging perspectives can be recognized considering assumptions about firms' degree of heterogeneity in their dynamic capabilities (Barreto, 2010). Most researchers, specifically those who applied a RBV thinking to this framework (e.g. Makadok, 2001), have, like Teece et al. (1997), implicitly or explicitly accepted that dynamic capabilities are basically firm-specific and unique. This assumption is possibly closely related with another one, also made in previous research, considering the relevance of firms' idiosyncratic path-dependent histories of investments and responsibilities for the creation and development of dynamic capabilities (Barreto, 2010). Leveraging on existing investments, responsibilities and relationships is important in considering capability development.

2.6.6 Outcomes

Early suggestions accepted a direct relationship between dynamic capabilities and performance. Teece et al.'s (1997) dynamic capabilities framework aims at explaining firm-level success and failure, competitive advantage, and private wealth creation. Similarly, Zollo and Winter (2002; p. 341) accepted a direct link between dynamic capabilities and superior performance and survival while declaring that, in changing environmental conditions, "both superiority and viability will prove transient for an organization that has no dynamic capabilities". Moreover, Teece (2007; p. 1320) repeated that "the ambition of the dynamic capabilities framework is nothing less than to explain the sources of enterprise-level competitive advantage over time" and that

“dynamic capabilities lie at the core of enterprise success (and failure).” At the same time, though, firms with identical dynamic capabilities could actually create dissimilar bundles of resources and consequently have differentiated performance levels (Zott, 2003).

Furthermore, according to Zahra et al. (2006), the relationship between dynamic capabilities and performance is implied through the quality of substantive capabilities transformed by dynamic capabilities. These authors also discovered that dynamic capabilities could be destructive instead of improving a firm’s performance if dynamic capabilities are utilized when they are not required or when wrong cause–effect assumptions are established.

2.6.7 Purpose

The purpose of dynamic capabilities is clearly expressed in the definitions presented by different authors. In Teece et al.’s (1997; p. 516) definition, the purpose of changing competences that counts is “to address rapidly changing environments”. For Eisenhardt and Martin (2000), the importance of a resource base change is not only to match but to create market change as well, whereas Zollo and Winter’s (2002) definition aimed at pursuing improved effectiveness. For Zahra et al. (2006), the reconfigurations of interest are those adjusted with the desires of the principal decision makers. Similarly, Helfat et al.’s (2007) definition simply demands that a resource base change be “purposefully” made. Finally, the necessity of resource base change is to “systematically solve problems, formed by a firm’s propensity to sense opportunities and threats, to make timely and market-oriented decisions” (Barreto, 2010). The next section considers capability development from an internal and external perspective.

2.7 Capability development: internal building, acquisition and external leveraging

Subsidiaries develop their own capabilities, but also access and, then, acquire or use capabilities from external sources. Thus, capability development can be categorized into three aspects: internal building, acquisition and external leveraging.

2.7.1 Internal building

Internal building of capabilities is defined as the internal accumulation of expertise and competence. Subsidiaries can accumulate expertise and competence through direct or indirect experience. Different from capabilities available through external leveraging,

subsidiaries possess the capabilities they developed from internal building. Inter-organizational collaboration is one of the main ways that subsidiaries utilize to source knowledge and skills beyond their boundaries.

2.7.2 Acquisition

Acquisition of, initially externally developed capabilities is in between building and leveraging, and concerns the transfer, integration and creation of knowledge from external sources. Alliances and networks have been widely viewed as critical platforms for intra- and inter-organizational learning. Various learning possibilities occur in alliances and networks. Inkpen and Tsang (2007) summarize four types, learning about partners, the alliance, from the partner and with the partner, respectively. By engaging in alliances, a firm may access existing knowledge in other firms (Hamel, 1991; Inkpen and Tsang, 2007) or gain new knowledge that is either independently produced because of having a partner (i.e. knowledge about partners and about alliance management) (e.g. Kale et al., 2002; Kale and Singh, 2007) or jointly created with partners (Lubatkin et al., 2001; Mowery et al., 2002). This type of learning is enhanced by key benefits that result from engaging in alliances. First, alliances and networks can directly facilitate knowledge combination and integration in terms of time and referral to necessary knowledge sources (Ahuja et al., 2008). Second and in turn, alliances and networks can increase the efficiency and effectiveness of knowledge combination and integration by enabling exposure to additional valuable information and knowledge (Ahuja et al., 2008; Grant and Baden-Fuller, 2004). New knowledge creation depends on the integration of multiple knowledge units of different nature and content through close day-to-day interaction in both the intra- and inter-organizational scenarios (Brown and Duguid, 2001).

Some scholars (Hamel, 1991; Inkpen, 1998) argue that both collaboration and competition exist in alliance learning. They argue that learning and internalizing skills from partners is critical for improving a firm's position within and without collaborations, and that firms may lose bargaining power in value appropriation if they are inept at learning. This argument concludes that alliances result in the convergence of two partners' capability sets. Others suggest that firms could simply access and use knowledge from others (Gulati, 2007), or organize co-specialization collaboration in which two partners combine skills and expertise to jointly develop new knowledge, capabilities, and products (Lubatkin et al., 2001; Mowery et al., 2002). Empirical examination reveals the reality of both internalization and co-specialization; however,

the latter has been studied much less (Mowery et al., 1996). Acquiring net benefits from involving in alliance networks demands managerial skills (Powell, 1998) and involves cost (Deeds and Hill, 1996). Two capabilities are discussed as the facilitator of these benefits: alliance management capabilities and absorptive capacity. First, there is a large body of studies concentrating on the building of alliance management or relational capability in facilitating the alliance performance (e.g., Doz, 1996; Hoang and Rothaermel, 2005; Kale and Singh, 2007; Kale et al., 2000; Zollo et al., 2002). Alliance management capability helps firms better manage partnerships and improve benefits. Firms accumulate this capability through experiential learning from their individual experience, and build and improve “inter-organizational routines” to lead inter-firm coordination and cooperation (Doz, 1996; Hoang and Rothaermel, 2005; Zollo et al., 2002).

Second, absorptive capacity is important for capability development. Absorptive capacity, the ability to learn from other firms, helps firms evaluate, assimilate and absorb knowledge and achieve effective learning (Cohen and Levinthal, 1990; Zahra and George, 2002). Cohen and Levinthal (1990) proposed that prior related knowledge, existing knowledge that is similar to or relevant for the target technology (Tallman et al., 2004) or the target organization (Lane and Lubatkin, 1998) is needed to leverage the new knowledge. Nevertheless, this line of research has not dealt with firms or subsidiaries in the early stages of their lifecycle. Hence the question is: how can early-stage firms with a low level of absorptive capacity leverage external knowledge? Cohen and Levinthal (1990) put forward that R&D investment is an important and useful way to build absorptive capacity, because the knowledge accumulated through intensive R&D expenditures and activities will build and expand the knowledge base for firms that want to learn from others. Similarly, learning from others will contribute to increase absorptive capacity, which then contributes to the next round of learning.

Van den Bosch et al. (2005) suggested a definition of absorptive capacity, which is based on three factors: the capacity to identify the value of external knowledge, the capacity to assimilate it and the capacity to use it for commercial purposes. In 1999, Van den Bosch and colleagues developed an insightful framework to show how absorptive capacity co-evolves with a firm’s knowledge environment. They proposed that organizational forms (functional, divisional or matrix) and combinative capabilities (i.e. system, coordination and socialization capabilities) influence the level of absorptive

capacity of the firm.

2.7.3 External leveraging

External leveraging of capabilities is the process of accessing and applying external expertise and competence through which firms extend their capabilities while not, possessing the external expertise and knowledge they build on themselves. Absorptive capacity is recognized as one of the basics of learning inside organizations (Kedia and Bhagat, 1988; Veugelers and Cassiman, 1999). In addition, a number of studies have shown the relationship between absorptive capacity and organizational performance (Cohen and Levinthal, 1990; Levinson and Asahi, 1995; Mowery and Oxley, 1995; Mukherjee et al., 2000). For an organization to boost its absorptive capacity, it needs to increase its ability to transform and implement external knowledge within the company so as to improve its core competencies (Daghfous, 2004; Noblet et al., 2011). An organization that wants to utilize the sources that can improve its absorptive capacity effectively needs to mainly concentrate on the communications interface between the external environment, the company at large and its constituent units (Cohen and Levinthal, 1990; Grant, 1991; Levinson and Asahi, 1995). Moreover, organizational culture is assumed to be one of the determinants of the effectiveness of organizational transfer (Kedia and Bhagat, 1988). Culture can either encourage change in a system and learning or, contrarily, act as a counterweight and hinder change and learning (Levinson and Asahi, 1995).

2.7.4 The dimensions of an organization's absorptive capacity

Zahra and George (2002) (see also e.g. Noblet et al., 2011) described four dimensions of absorptive capacity: acquisition, assimilation, transformation and exploitation. Later, they suggested a novel approach of framing the concept by differentiating between potential (acquisition and assimilation of knowledge) and realized (transformation and exploitation) absorptive capacity. Rothaermel and Alexandre (2009) viewed acquisition and assimilation as external capabilities; transformation and exploitation as internal capabilities. Acquisition is defined as the capacity to identify, understand the importance of, and acquire the external knowledge required for the operations of an organization (Lane and Lubatkin, 1998; Zahra and George, 2002). Hamel (1991) posits that the acquisition of new, specialized knowledge is a motivator for inter-organizational collaboration. Likewise, Welsch et al. (2001) express acquisition as a source of knowledge for an organization. Acquisition can be as a result of investment in

R&D. Assimilation relates to a firm's capacity to combine external knowledge using routines and processes that allow it to understand, analyze, process and interpret information derived from external sources. Zahra and George (2002) propose that the number of publications in which a firm refers to research performed by others could be used to determine its success in this area.

Transformation is a firm's capability to build and refine the routines that enhance integrating existing knowledge and newly acquired and assimilated knowledge. This can be realized by adding, eliminating, or interpreting knowledge. It involves two basic elements: internalization and conversion. Zahra and George (2002) proposed that an index of a firm's degree of success in transformation could be the number of ideas or research projects focused on new products. Exploitation is a firm's capacity to competitively utilize new external knowledge to accomplish its organizational objectives (Lane and Lubatkin, 1998). Routines establish an environment that allows a firm to refine, expand and leverage existing competencies or develop new ones by including acquired and transformed knowledge into its operations. Zahra and George (2002) suggested using the number of patents received or new products disclosed as an index of a firm's degree of success in this area.

2.7.5 Factors influencing absorptive capacity

Absorptive capacity is affected by both internal and external components (Daghfous, 2004; Noblet et al., 2011). Internal components include the previous knowledge base, individual absorptive capacity, the level of education and academic qualifications of employees, the diversity of their backgrounds, the specific role played by gatekeepers, organizational structures, levels of cross-functional communication, organizational culture, company size, organizational inertia, investment in R&D, and human resource management. External components are a consolidation of the external knowledge environment and the company's status within the appropriate knowledge networks. Lin et al. (2002) found that firms cannot successfully combine and utilize external knowledge except if they have a high level of absorptive capacity. The authors studied the fundamental factors required for absorptive capacity in circumstances where transfers occur (e.g. in technology transfer) and established plausible relationships between absorptive capacity and factors such as diffusion channels for external technology, organizational interaction mechanisms and R&D resources. Furthermore, considering the correlation between absorptive capacity and R&D, the concept presently

includes, among other factors, employee skills and motivation (Minbaeva and Michailova, 2004), relevance of the knowledge, similitude between organizational structures and shared research communities (Lane and Lubatkin, 1998).

Exploratory learning is an important element of any organization's capacity to develop variety and adapt (McGrath, 2001). Van den Bosch et al. (1999) recognize three characteristics in the absorption of knowledge: its efficiency, scope and degree of flexibility. Efficiency in the absorption of knowledge involves how firms identify, assimilate and exploit knowledge from a cost and economies of scale perspective. Scope indicates the breadth of component knowledge a firm relies on. Flexibility refers to the extent to which a firm can access additional, and reorganize existing, component knowledge. Van den Bosch et al. (1999) proposed that scope and flexibility in the absorption of knowledge are strongly associated with organizational knowledge structures that are exploratory in nature (March, 1991), while efficiency is more closely related to adaptations leading to exploitation. Tsai (2001) contributed from a network perspective and argued that organizational units can develop more innovations and have better performance if they occupy central network positions. This gives them access to new knowledge developed by other organizations, although they remain basically dependent on their own absorptive capacity and ability to successfully imitate the new knowledge. Following Noblet et al.'s (2011) structure, [Table 2.4](#) summarizes the literature presented in this section.

Table 2.4: Dimensions of absorptive capacity (based on and elaborated from Noblet et al.'s (2011) structure).

Dimensions	Authors
Acquisition	Kedia and Bhagat (1988); Cohen and Levinthal (1990); Hamel (1991); Mowery and Oxley (1995); Levinson and Asahi (1995); Kim (1998); Lane and Lubatkin (1998); Veugelers and Cassiman (1999); Mukherjee et al. (2000); Lane et al. (2001); Welsch et al. (2001); Zahra and George (2002); Minbaeva and Michailova (2004), Noblet et al. (2011)
Assimilation	Cohen and Levinthal (1990); Kim (1998); Lane and Lubatkin (1998); McGrath, (2001); Zahra and George (2002); Bosch et al. (1999, 2005); Rothaermel and Alexandre (2009)
Transformation	Mowery et al. (1996); Kim (1998); Lin et al. (2002); Zahra and George (2002); Daghfous (2004); Noblet et al. (2011)
Exploitation	(March, 1991); Grant (1991); Levinson and Asahi (1995); Cohen and Levinthal (1990); Kim (1998); Lane and Lubatkin (1998); Tsai (2001); Zahra and George (2002); Ferdows (2006); Volberda et al. (2010)

Ferdows (2006) stated that a principal determinant of absorptive capacity in a production unit is the level of technical competence at its site (see also Ferdows, 1997b;

Tsai, 2001; Soo et al., 2002). In production, site competence goes up with the presence of more technical experts such as engineers, specialists in relevant process technologies, highly qualified technicians, experienced operators, quality management professionals, programmers, or other qualified or educated staff (Ferdows, 1997b). The next section presents subsidiary capabilities.

2.8 Subsidiary capabilities

2.8.1 Evolution of subsidiary's capabilities

Birkinshaw and Hood (1998a) suggested that subsidiary evolution is the result of an accumulation or depletion of capabilities over time. A firm's commitment to building new capabilities involves learning from other organizations, creating new skills, or revitalizing existing skills in new situations (Luo, 2002). Blomstermo et al. (2004) used the term "experiential knowledge" to denote a range of accumulated knowledge concerning a firm's international operations in various markets, and the capabilities to exploit this knowledge in an on-going and effective way. On the one hand, capabilities are more often developed within functional areas (Amit and Schoemaker, 1993) and, as knowledge and experience that are accumulated through functional activities vary from function to function, the degrees of functional capability development differ from function to function (Schmid and Schurig, 2003). On the other hand, Baghai et al. (1996) identify capabilities in terms of special relationships, business-specific competences, growth-enabling skills and privileged assets. On the basis of the ideas presented above and in an effort to understand the major problems faced by subsidiaries in emerging markets and how they could be resolved, Vereecke and Van Dierdonck (2002) proposed future research to explain how to develop subsidiary capabilities and know-how. Similarly, Reiner et al. (2008) suggest investigations on how subsidiaries in emerging countries could build capabilities and thus attract more investment (cf. the changing network role in Vereecke et al., 2006), and the possibility of optimal level of control over the subsidiaries. Kim et al. (2011) also call for research of the subsidiary and HQ's perceptions of the amount of autonomy delegated and the levels of support provided in forming subsidiary capabilities. Such autonomy influences the strategic role of a subsidiary and considering the role changes of subsidiaries in local markets such as, for example, from an offshore plant to a server plant – in response to market opportunities, it is relevant to investigate how subsidiaries develop the capabilities to match its strategic role changes. In line with this, this research seeks to explore the building of subsidiary capabilities, which is needed to serve local market requirements,

i.e. server capabilities. Research on server capability development is timely because there are increased numbers of western companies in emerging markets that are changing role from an offshore plant to a server plant in order to tap into the potentials (e.g. [Table 1.1](#)) of such markets. A contingency perspective is adopted in order to investigate the relationship between the context of firms and the way activities are organized within, firms (Ghoshal and Nohria, 1997; Forsgren, 2008). The contingencies considered in this study are discussed below.

2.8.2 Possible role of contingencies

Strategy

The strategy of a subsidiary means its position relative to its environment and is aimed to draw the organization closer to its long-term goals (Slack et al., 1998). According to Teece et al. (1997), strategy involves selecting and committing to long-term paths or trajectories of competence development. Hayes and Wheelwright (1984) suggest that a strategy involves identifying “ends and ways” (business objectives and strategy) and developing “means” (resources and capabilities) through which the selected ends and ways can be achieved. The definition of MNC adopted in this study follows Root (1994), i.e. an MNC represents a business enterprise, which engages in foreign production through its subsidiaries located in several countries and/or implements business strategies in production, marketing, finance and staffing that transcend national boundaries. While the mode of operation is determined by MNC strategy regarding the degree of externalization of activities and the level of localization of activities in each country, the mandate is largely impacted by the degree of integration of activities across different countries.

Industry

The industry considered for this research concerns ISIC Rev. 3.1 Division 29. This industrial division deals with the manufacturing of general-purpose machinery, components and special applications, including:

- Motors and engines (except electric motors), turbines, pumps, compressors, valves and transmissions.
- Ovens, burners, lifting and handling equipment, cooling and ventilation equipment, other general-purpose machinery (e.g. packaging equipment, weighing machines and water purification equipment).
- Agricultural machinery, machine tools, machinery for other specific industrial

purposes (e.g. for metal production, building and civil engineering, mining or the manufacture of foodstuffs, textiles, paper, printed matter, plastic and rubber products.

- Domestic appliances (electrical and non-electrical).

HQ

HQ or parent company dictates resource sovereignty as well as strategy definition across various parts of the value chain, including the subsidiaries. HQ receives information on product improvements, new product development, service needs and other customer demands from various subsidiaries and decides on the subsidiary to perform a specific activity based on the resources and investments in that subsidiary. HQ may exhibit its authority to influence a subsidiary's mandate but if the subsidiary is autonomous, then the subsidiary dictates its own mandate.

Market characteristics

Market characteristics of the case subsidiaries are geographic and product related, that is, most of the products are specific for the local, i.e. Chinese market. The ease or difficulty of a subsidiary to take a specific initiative depends on the strategic "starting point" for that subsidiary. The starting point for initiative taking may vary. For example, a subsidiary may be a significant business unit with total operations in its own right, focused on serving a local market in addition to a number of global responsibilities such as, for example, market based server entities. In contrast, a subsidiary could also be a firm that manufactures a component for its home-base finishing plants without involvement in the parent's R&D, engineering, quality, marketing and sales functions (Delany, 2000). The strategic starting point for initiative-taking in each instance is different. To understand such differences, a useful initial approach is to consider three "markets" where subsidiaries may add value: the internal market, the local market, and the global market.

Internal market

The internal market is made up of the internal customers, suppliers and competitors within the MNC. The internal market may be a regional or global internal market dependent on the subsidiary and the parent organization structure. In the case of many manufacturing or development center subsidiaries there may be little contact with the actual "end customer" in local or international markets. All the key interactions are within the internal market. The subsidiary may get most of its supplies from other

component manufacturing subsidiaries of the parent; its output may go to other manufacturing subsidiaries or to the national sales subsidiaries of the parent. Frequently, these subsidiaries may find themselves in competition with sister sites for corporate business. While initiatives in the local and global markets are usually more important, as the corporation must earn its revenue externally, the internal market is a differentiating feature of the environment of the subsidiary. Furthermore, much of the activity in the internal market relates to competition for better external customer value opportunities. Regardless of its level of strategic independence, the subsidiary must understand its internal market and meet its internal customers' needs.

Local market

The local market is the national or regional end-customer market in which the subsidiary is located. It will be the most suitable environment for a marketing/sales subsidiary distributing products manufactured by its parent in other countries or products manufactured locally. It must deal with local customers, competitors (some of whom may be subsidiaries of other MNCs), corporate and local suppliers, and regulatory bodies.

Global market

The global market could be the entire world end-customer market or specific regional niches of that market. The mandates of subsidiaries serving the global market extend beyond national boundaries. These subsidiaries may be using other national subsidiaries of the parent company to distribute, market and sell their products, which increases the complexity and significance of the internal corporate market facing the subsidiary.

2.9 Field of enquiry, research question and research model

2.9.1 Field of enquiry

The literature review is broadly structured as follows. [Sections: 2.2](#), 2.3 and 2.4 review operations management, international management and international business/management, and organization design theory. [Sections 2.5](#), 2.6 and 2.7 cover the relationships between these theories, i.e. the areas where they overlap. [Section 2.8](#) presents subsidiary capabilities. [Section 2.9](#) sketches the field of enquiry and identifies gaps in theory. [Figure 2.1](#) presents the Venn diagram for delimiting specific knowledge areas relevant to the study (Rudestam and Newton, 2007). It appears that few researchers have investigated server capability development from a contingency standpoint. Taking a specific contingent perspective will help to provide a better

understanding of server capability development. Previous and extant discussions on the strategic role of subsidiaries and subsidiary development are mainly based on strategic reasons for subsidiary's location, site competences and autonomy of HQ and its subsidiaries. Subsidiaries may change from lower strategic roles to higher ones (e.g. from a server plant to a contributor plant). However, it is not clear how they develop their capabilities according to the evolution of their strategic role. Existing works have established the influence of parents and local environment on the determination of subsidiary roles (Birkinshaw and Hood, 2000). Reiner et al. (2008) suggest investigations on how subsidiaries in emerging countries could build capabilities and thus attract more investment (the changing network role in Vereecke et al., 2006), and the possibility of optimal level of control over the subsidiaries. Kim et al. (2011) call for a study between the subsidiary and HQ's perceptions of the amount of autonomy delegated and the levels of support provided in forming subsidiary capabilities. Autonomy influences the strategic role of a subsidiary and considering the role changes of subsidiaries from, for example, an offshore plant to a server plant in response to market opportunities.

From a theoretical perspective it is therefore important to investigate how subsidiaries develop the capabilities to match their strategic role changes, and consider the role of autonomy, strategy and other internal and external contingencies in the research. Investigating server capability development is also relevant and timely from an empirical perspective: ever more subsidiaries form western companies in emerging markets are changing role from an offshore plant to a server plant in order to take advantage of market potentials (e.g. [Table 1.1](#)). The identified field of enquiry from the literature review is listed in [Table 2.5](#).

Table 2.5: Field of enquiry identified from the literature review.

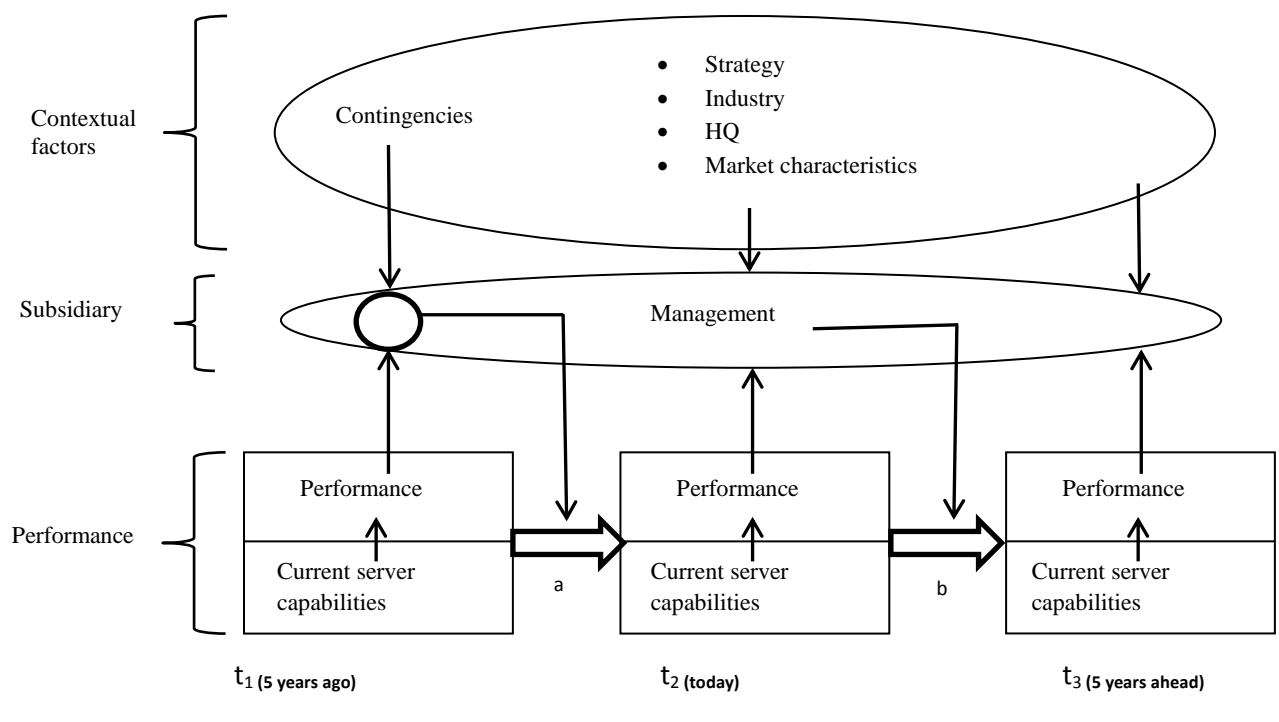
Process	What is known	What is not known
Server capability development	<ul style="list-style-type: none"> • Strategic roles of subsidiaries • Strategic role changes • Site capabilities • Operations capabilities • Dynamic capabilities • Subsidiary development • Capability development 	<ul style="list-style-type: none"> • How subsidiaries develop capabilities in order to serve local market demands and global/HQ requirements. • How that leads to changes in the relationships between HQ and its subsidiaries and in their networks as a whole.

2.9.3 Research question

From this literature review, the main research question to be investigated in this study is: *How do subsidiaries successfully develop server capabilities, that is, the capabilities needed to get beyond low cost production, serving home base requirements, and develop access to and start serving their local market?*

2.9.4 Research model

The relationships of concepts that are under investigation in this study are presented diagrammatically in [Figure 2.6](#) as the research framework for this thesis.



a & b – Capability development

Figure 2.6: Theoretical framework for this thesis.

2.10 Chapter summary

This chapter reviewed the literature on the following topics:

- Strategic roles of subsidiaries
- Subsidiary development
- Organization design theories e.g. contingency theory, systems theory
- Operations capabilities
- Capability development – internal and external perspective
- Dynamic capabilities

Relevant gaps were identified on the basis of the literature review. In order to address these gaps, the research presented here started from the fundamental components of subsidiary capabilities (Kim et al., 2011; Reiner et al., 2008; Vereecke et al., 2006, traced the evolution of subsidiaries retrospectively in their different international operations, and developed the research question: *How do subsidiaries successfully develop server capabilities, that is, the capabilities needed to get beyond low cost production, serving home base requirements, and develop access to and start serving their local market?*

Chapter 3 Research design

3.1 Introduction

The precision of the outcome of a research or study depends largely on the methodological and/or methodical approach, standards and procedures of inquiry adopted to research the propositions and research questions underlying the anticipated study (Yin, 2009). As such, a discussion of research design and methodology typically focuses on the selection of appropriate methods of data collection and analysis.

First, this chapter presents the research paradigm, the theoretical foundation on which the research design and methodology are built. Due to the exploratory nature of the study, a qualitative methodology, and in particular, the case study approach is considered to be the most appropriate method. Subsequently, the data collection and analysis methods used are described. Finally, the procedures used to ensure the quality of the findings are discussed.

3.2 Theoretical foundation adopted for the research process

The most important purpose of scientific research is to build theory on a specific research area. According to Christensen (2006), theory is normally built in two major stages: the descriptive stage and the normative stage. Within each of these stages, theory builders proceed through three steps. The theory-building process, which is iterated through these three steps, is depicted in [Figure 3.1](#).

- Christensen (2006, p. 39) states that “in the past, management researchers have quite carelessly applied the term theory to research activities pertaining to only one of these steps. It is more useful to think of the term theory as a body of understanding researchers build cumulatively as they iterate through each of the three steps in the descriptive and normative stages.” The theory building process is very much based on the phenomenological paradigm, and its adoption is primarily rooted in the following factors:
- The absence of accepted a priori typologies, frameworks, and formal theories in the literature that can be used to answer the research question (Strauss and Corbin, 1990; Gill and Johnson, 1991).

- The inadequacy and lack of empirical substantiation of current perspectives (Eisenhardt, 1989).
- Theory-testing studies that suggest there is a need for a new perspective (Handfield and Melnyk, 1998; Forza, 2002; Karlsson, 2009).

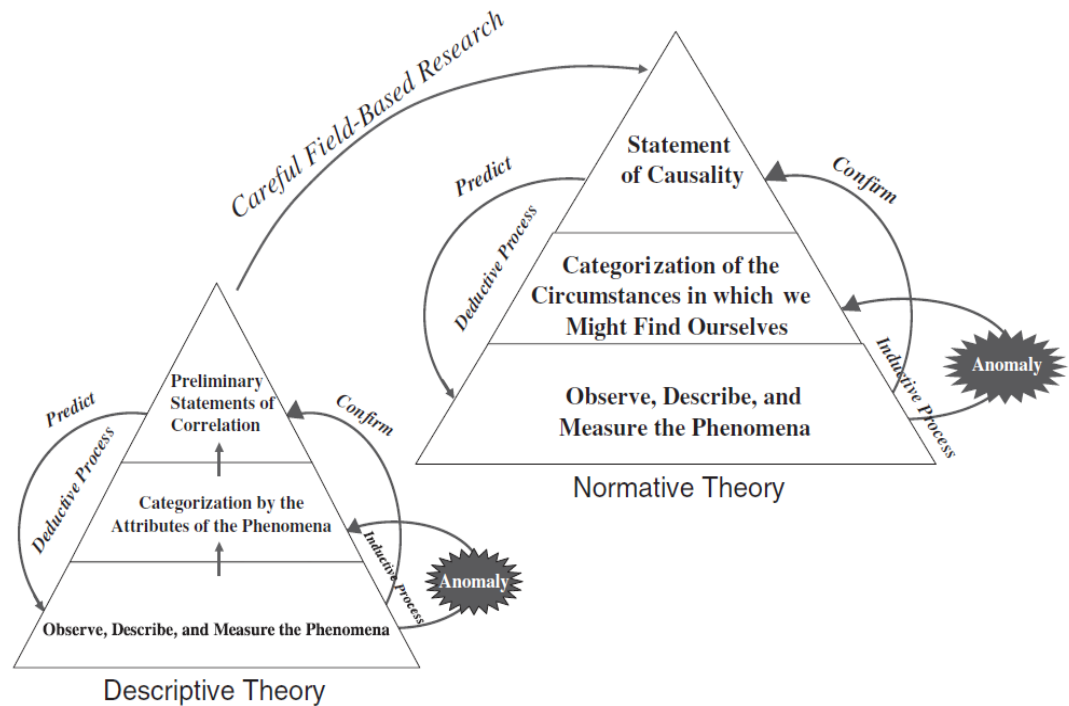


Figure 3.1: The complete process of theory building (source: Christensen, 2006).

Specifically guided by the second factor the research in this thesis is iterative in the style of Christensen's approach, but mainly focuses on the descriptive stage because of the state-of-theory, time and cost limitations. At that stage, the research process tends to consist of a series of inductive and deductive iterations where the research concepts emerge and are gradually refined. The inputs to the present research process are extant literature, insights from the Sino-Danish Center for Education and Research (SDC), company documents, and qualitative data obtained from the case subsidiaries. Further details are presented below.

As represented by the descriptive theory pyramid in [Figure 3.1](#), a detailed and empirical approach is required to first observe, describe and measure the focal phenomenon. There are many proponents of empirical research. Flynn et al. (1990) compare empirical research to laboratory experimentation, and outline the stages of developing empirical research. Snow and Thomas (1994) argue that empirical research is appropriate for both theory building and theory testing. In this thesis, the case study method is selected as the

proper empirical approach. Conducting field studies in eight different subsidiaries provides the author with opportunities to observe and further describe the general phenomenon of interest – subsidiary development.

In the second stage of the theory-building pyramid, the research question as formulated requires the introduction of new categories from the described phenomenon to better and more specifically understand the strategic role changes and capability development of local subsidiaries. Significant research demands staying away from current conceptual boxes by defining new variables or developing a new logic rather than examining relationships among traditional variables (Parkhe, 1993). The categorization scheme the author proposes is defined by the dimensions of the phenomenon. Categorization arranges and simplifies the world in forms that highlight possibly consequential relationships between the phenomenon and the outcomes of interest. These descriptive categorization schemes are often referred to as frameworks or typologies (Christensen, 2006). In the third stage, the association between the category-defining attributes of the phenomenon and the outcomes observed is further explored. The output at this step is often referred to as a model (Christensen, 2006). Models are usually situation specific, rigorous, and of limited complexity (Porter, 1991). The proposed model can be improved by following the deductive process, which revolves from the top to the bottom of the descriptive theory pyramid shown in [Figure 3.1](#). Normally, this theory improvement is done by exploring whether the same correlations exist between attributes and outcomes in a different dataset from that used to deduce the hypothesized relationships (Christensen, 2006). More cases can help discover anomalies or contradictions, which are critical for theory building. The broadening concepts needed to account for these anomalies or contradictions can lead to improving and refining the theory (Christensen and Sundahl, 2001). Research directions to this end will be suggested in the concluding chapter.

3.3 Research strategy adopted

Which research strategy to adopt depends on the purpose that the study seeks to fulfill. To a certain degree, the research strategy is decided by the research questions. Yin (2009) offers three conditions for selecting between research strategies:

- Type of research question.
- Amount of control the investigator needs to have over actual behavioral events.
- Focus on contemporary as opposed to historical phenomena.

This thesis aims to understand how subsidiaries develop capabilities needed to get beyond low cost production and start to serve local market and global/HQ requirements (server capabilities). Moreover, with the aim of developing theory, the research focuses on contemporary matters, where little control can be achieved. In this context, the case study research is an appropriate method due to its relevance for building theory (Eisenhardt, 1998; Voss et al., 2002) on “how” questions (Yin, 2009; Meredith, 1998) related to contemporary issues (Yin, 2009). Case research has its origin in the broader field of social sciences, in particular ethnographic studies and anthropology. However, since “the explanation of quantitative findings and the construction of theory based on those findings will ultimately have to be based on qualitative understanding” (Meredith, 1998, p. 453), the case study approach has consistently been one of the most dominant research methods in Operations Management, specifically in the development of new theory (Drejer et al., 1998; Lewis, 1998; Voss et al., 2002).

There are various challenges in conducting case research: it is time consuming, it needs skilled interviewers, and care is needed in drawing generalizable conclusions from a limited set of cases and in ensuring rigorous research. Notwithstanding, the results of case research can have very high impact (Voss, 2009). Meredith (1998) cites three outstanding strengths of case research stated by Bebensat et al. (1987):

- The phenomenon can be studied in its natural setting, and meaningful, applicable theory can be developed from the understanding gained through observing real practice.
- The case method allows the questions of *why*, *what* and *how*, to be answered with a relatively complete understanding of the nature and complexity of the entire phenomenon.
- The case method permits early exploratory investigations, where the variables are still unknown and the phenomenon not at all understood.

Free from the bounds of questionnaires and models, this method can lead to novel, creative insights, the development of new theory, and have high validity with experts. Many of the breakthrough concepts and theories in OM have been developed through field-based case research. Indeed, case research enriches not only theory, but also the researchers themselves (Voss et al., 2002; Voss, 2009).

According to Voss (2009), a case study involves the following steps:

1. Determining to use case research.

2. Developing the research framework, constructs, and questions.
3. Choosing cases.
4. Developing research instruments and protocols.
5. Conducting the field research.
6. Data documentation and coding.
7. Data analysis, hypothesis development and testing.
8. Ensuring quality of research design.

The next sections describe how the steps above are implemented in this research.

3.4 Determining to use case research

A case is an example and the unit of analysis in case research. Case research is the method that uses case studies as its basis. A case study is a history of a past or present phenomenon, drawn from multiple sources of evidence (Leonard-Barton, 1990). Case research can be used for different purposes, such as exploration, theory building, theory testing, and theory extension/refinement (Yin, 2009; Handfield and Melnyk, 1998) [see Table 3.1](#). Examining the research questions (how and why), context (contemporary phenomena) and aim (theory development) of the present research, the case research approach was adopted.

Table 3.1: Matching research purpose with methodology (source: Handfield and Melnyk, 1998).

Purpose	Research question	Research structure
<i>Exploration</i> Uncover areas for research and theory development	Is there something interesting enough to justify research?	In-depth case studies Unfocused, longitudinal field study
<i>Theory building</i> Identify/describe key variables, linkages between variables, and 'why' these relationships exist	What are the key variables, the patterns, or linkages between variables? Why should these relationships exist?	Few focused case studies In-depth field studies Multi-site case studies Best-in-class case studies
<i>Theory testing</i> Test the theories developed in the previous stages and predict future outcomes	Are the theories generated able to survive the test of empirical data? Did the behavior that was predicted by the theory or another unanticipated behavior emerge?	Experiment Quasi-experiment Multiple case studies Large-scale sample of population
<i>Theory extension/refinement</i> To better structure the theories in light of the observed results	How generalizable is the theory? Where does the theory apply?	Experiment Quasi-experiment Case studies Large-scale sample of population

3.5 Developing the research framework, constructs, and questions

Researchers should always try to go into organizations with a well-defined focus no matter how small the sample is, or what their interests are (Mintzberg, 1979). The starting point for case research is the research framework and questions. A framework explains, either graphically or in narrative form, the main topics that are to be studied (i.e. the key factors, constructs or variables) and the presumed relationships among them. Subsequent to the research framework, the research questions should be developed at the start of the study, to guide the collection of data (Miles and Huberman, 1994). Case study research has been established as being specifically good for investigating how and why questions (Yin, 2009). Such questions can lead to theory testing as well as theory development. In theory-development research, no matter how inductive the approach, it is required to have an a priori view of the general constructs or categories intended for study and their relationships.

The research question of this study requires investigating subsidiaries in the past, today, and in the future. The research framework developed in Chapter 2 is based on a review of relevant literature and represents the constructs of interest. From the research framework, untested theoretical suggestions have been identified and a more detailed theoretically relevant research question has thereby been formulated in [Section 2.9.1](#).

3.6 Choosing the cases

The selection of the unit of analysis is an important step, and is dependent on the research question (Flynn et al., 1990; Yin, 2009). In this thesis, the unit of analysis is defined as server capability development. More specifically, this thesis concentrates on capabilities a subsidiary needs to serve local market requirements. Matters related to the case study method include case selection, the number of cases to be used, and sampling criteria. Eisenhardt (1989) described case selection as an important aspect of theory-building research. Glaser and Strauss (1967) stated that choosing cases should be based on theoretical sampling, rather than statistical robustness. Theoretical sampling means selection of cases on the basis of concepts (Strauss and Corbin, 1990) or criteria (Eisenhardt, 1989; Yin, 2009) that have proven to be of theoretical relevance to the evolving theory. However, when building theory from case studies, case selection using replication logic rather than sampling logic should be used. The cases should be selected to predict similar results (literal replication), or produce contrary results but for

predictable reasons (theoretical replication) (Voss, 2009). As a result of these case selection criteria, the two main cases were selected on the basis of the following criteria:

- They differ in terms of decision-making by HQ and interplay with its subsidiaries.
- They have defined production as an important element of their strategy.
- They have already set up subsidiaries in a local market and have operated them as part of their international operations networks for many years.
- They share a pressure to, and have undergone a reasonably long process of, adapting their operations to the local market.
- There is a high degree of awareness of role changes and their link with operational performance.

Taking these points as a common path of departure, more specific criteria are followed to select cases for this thesis. The subsidiaries selected for the purpose of this research are all part of a Danish MNC, and have operated in China for some years with noticeable strategic role changes. While the latter allows studying the phenomenon of interest, capability development, the former reflects aspects such as distance/cost, accessibility and willingness to participate (Danish MNCs) and, above all, research funding (Chinese subsidiaries). The research is one of the projects of the Sino-Danish Center for Education and Research (SDC), one of whose aims it is to foster bilateral collaboration between the Center for Industrial Production, Aalborg University, Denmark and the National Institute for Innovation Management in Zhejiang University, China. One of the beneficial effects of this choice is that it reduces variance in cultural, business language, and management diversity of the cases.

The perfect number of cases is an ever-present debate. Strauss and Corbin (1990) argued that the optimal number of cases is reached when no additional data can be found. This is the point at which the data (or categories) become saturated. Eisenhardt (1989) wrote that, although there is no ideal number of cases, it is generally agreed that a number between four (4) and ten (10) cases is enough. Similarly, Voss (2009) states that for a given set of available resources, the fewer the number of cases, and the greater the opportunity for in-depth observations. Multiple cases may reduce the depth of study when resources are constrained, but can help both to improve external validity and guard against observer bias (Voss et al., 2002; Voss, 2009). In this research, the server capability development of eight cases (that is, six mini-cases and two main cases) is

analyzed, with particular emphasis on the two main cases. Given the exploratory nature of the work, none of the cases is intended for testing or verification purposes, but rather to develop tentative theory in the form of propositions for further research.

One of the most difficult but most important aspects of case research is the relationship between cause and effect. The longer the period over which phenomena are studied, the greater the opportunity to observe at first hand the sequential relationships of events (Voss et al., 2002; Voss, 2009). Therefore, it has been decided to adopt a retrospective case research. The ways in which the case subsidiaries changed their strategic role, accumulated resources and developed specialized capabilities are analyzed from a historical perspective by tracking the trajectories of the capabilities evolution.

3.7 Data collection

There are several methods of data collection, including documentation, archival records, interviews, observations, and questionnaires (Flynn et al., 1990). [Table 3.2](#) shows the strengths and weaknesses of each method (Yin, 2009). A four-step approach was used for data collection. First, secondary sources (i.e. documentation and archival records) such as annual reports, press releases, presentation material to customers and stakeholders, and media materials were analyzed to provide more knowledge about the background of the subsidiaries, as well as an overview of their operations. Next, interviews were held. Interviews provide an opportunity for the researcher to investigate deeply and reveal new clues, open up new dimensions of a problem, and secure vivid, precise, and inclusive accounts that are based on personal experience (Burgess, 1984). Interviewing is a means of capturing historical and real-time qualitative data (words, facts, opinions, and insights) from original sources and is, therefore, usually considered to be the main tool for social science research (Snow and Thomas, 1994). Furthermore, Easterby-Smith et al. (2002) suggest that interviewing is particularly useful when:

- The step-by-step logic of the situation is not clear.
- The subject matter is highly confidential or commercially sensitive.
- The interviewee may be reluctant to be truthful about the issue other than in a confidential, one-to-one situation.

Thus, given the nature and underpinning questions of this research, interviewing seemed to be the most appropriate method to collect detailed data.

Table 3.2: Strengths and weaknesses of each data collection method (source: Yin, 2009),

Data collection methods	Strengths	Weaknesses
Documentation	<ul style="list-style-type: none"> • Stable: could be reviewed repeatedly • Unobtrusive: not created as a result of the case study • Exact: contains exact names, references, and details of an event • Broad coverage: long span of time, many events, and many settings 	<ul style="list-style-type: none"> • Retrievability: could be low • Biased selectivity, if collection is incomplete • Reporting bias: reflects (unknown) bias of author • Access: may be deliberately blocked
Archival records	<ul style="list-style-type: none"> • (Same as above for documentation) • Precise and quantitative 	<ul style="list-style-type: none"> • (Same as above for documentation) • Accessibility due to privacy issues
Interviewing	<ul style="list-style-type: none"> • Targeted: focuses directly on case study topic • Insightful: provides perceived causal inferences 	<ul style="list-style-type: none"> • Bias due to poorly constructed questions • Response bias • Inaccuracies due to poor recall • Reflexivity: interviewee gives what interviewer wants to hear
Direct observations	<ul style="list-style-type: none"> • Reality: covers events in real time • Contextual: covers context of event 	<ul style="list-style-type: none"> • Time-consuming • Selectivity, unless broad coverage • Reflexivity: event may proceed differently because it is being observed • Cost: hours needed by human observers
Participant observations	<ul style="list-style-type: none"> • (Same as above for direct observations) • Insightful into interpersonal behavior and motives 	<ul style="list-style-type: none"> • (Same as above for direct observations) • Bias due to investigator's manipulation of events
Physical artifacts	<ul style="list-style-type: none"> • Insight into cultural features • Insight into technical operations 	<ul style="list-style-type: none"> • Selectivity • Availability

More particularly, it was decided to do semi-structured interviews, because they allow for the flexibility to ask questions about issues that emerge during the interview, while keeping the researcher focused within the research boundary (Bernard, 1995). Before the interviews were held, protocols were developed in order to enhance the reliability and validity of the data (Voss, 2009; Yin, 2009). A well-designed protocol is particularly important in multi-case research. The core of the protocol is a set of

questions developed on the basis of theory and the first empirical step, i.e. analysis of documents and archival records. The protocol acts as more than a questionnaire or instrument. Instead, it outlines the topics to be covered during an interview, states the questions to be asked, and indicates the specific data required. A commonly adopted format is the funnel model, which starts with broad and open-ended questions. As the interview progresses, the questions become more specific and the detailed questions come last (Voss et al., 2002; Voss, 2009). The protocols used are listed in Appendix A.

Table 3.3: Description of data sources, informants and their experience.

	Case Subsidiary	Interviewee (s)	Number of years in the current company	Number of years in the current industry	Date (s)	Total number of interviews
1	Alpha	Director of Technology	More than 10	More than 10	30.08.2011 24.03.2014	2
2	Alpha	Sourcing Director	~ 5	~ 5	24.03.2014	1
3	Alpha	HR Director	~ 5	20	26.03.2014	1
4	Alpha	Supply Chain Manager	~ 5	More than 7	26.03.2014	1
5	Alpha	Technology Manager	7	7	27.03.2014	1
6	Alpha	Operations Director	~ 2	More than 5	27.03.2014	1
7	Alpha	Sales & Marketing Director	~ 5	More than 5	28.03.2014	1
8	Alpha	Director of Global Factory support (GFS)	More than 15	More than 15	28.03.2014	1
9	Alpha	Director of Finance & IT	~ 5	More than 10	31.03.2014	1
10	Alpha	Laboratory Manager	More than 5	More than 5	31.03.2014	1
11	Alpha	General Manager	6	20	01.04.2014	1
12	Beta	Regional Fulfillment Manager	13	13	16.03.2012 16.11.2012 25.03.2014	3
13	Beta	Sales Operation Director	~ 5	20	14.03.2012 03.04.2014	2
14	Beta	Sales Manager Sales Engineer	14 5	14 5	08.04.2014 08.04.2014	1
15	Gamma	Regional Manager	~ 5	More than 5	12.11.2012	1
16	Delta	General Manager	More than 5	More than 5	15.11.2012	1
17	Epsilon	Managing Director Quality Manager	More than 10 10	More than 10 10 10	29.05.2014 29.05.2014	1
18	Zeta	General Manager	More than 5	More than 5	17.05.2012	1
19	Eta	General Manager	6	More than 10	26.05.2014	1
20	Omega	General Manager	~ 5	38	26.05.2014	1
	Total					24

An outline of the protocols was sent to the interviewees in advance in order to ensure that they were properly prepared. The researcher spent half a day up to two weeks for site visits at the case subsidiaries, meeting with managers/directors in the top management at each visit. Then semi-structured interviews spanning between one to two hours each were conducted with regional fulfillment managers, CEOs, general managers, senior supply managers and/or operations managers/directors (see [Table 3.3](#)), who were selected for their knowledge about and experience with the subsidiary operations and their development over the years. The interviews were digitally audio-recorded in order to provide accurate rendition of what was actually said and, afterwards, transcribed into feedback reports, which were sent to the interviewees for data-checking purposes (Voss et al., 2002; Voss, 2009). Also, recording make it possible to focus as much attention as possible on the interaction with the interviewee, including further relevant questions, rather than focusing attention on documenting the interviews.

Field notes were used as well to record ideas, specifically interesting responses and impressions as soon as they occurred so as to push the researcher's thoughts. Third, visits were made to the Danish HQ and operations facilities of the two main case subsidiaries, and semi-structured interviews were held with operations managers, engineers, and shop floor workers. Plant tours were used to complement the interview sessions at the subsidiary and at headquarters (stage two and three), respectively. Fourth, based on the document reviews (company brochures, company websites, company magazines), company presentations, interviews, and observations, case reports were written and returned to the subsidiaries for clarification and verification. After several rounds of correcting, the case reports were finalized.

In addition, twelve preliminary interviews in the pilot study were conducted in twelve subsidiaries in the equipment/machinery industry; they were not all transcribed, but were all preliminarily coded, which gave useful insights to start data analysis.

3.8 Data analysis

Qualitative studies use data to derive structure (Easterby-Smith et al., 2002) unlike quantitative studies, which impose an external structure on the data. Particularly, in case research, there is an overlap between data collection and data analysis, which allows the researcher to take advantage of flexible data collection, make relevant adjustments

along the way (Eisenhardt, 1989), and establish an iterative process between interviews, literature reviews, and analysis (Mason and Leek, 2008). This adjustment may involve the addition of cases to probe particular themes that emerge, the addition of questions to an interview (protocol), or the addition of data sources. Starting simultaneously with the data collection, the data analysis in this research follows the approach by Eisenhardt (1989) and Voss (2009), that is, analysis of within-case data while searching for cross-case patterns at the same time. Having developed detailed case descriptions and coded the data, the first step is to analyze the pattern of data within cases. A useful and common starting point is to construct an array or display of the data or, with longitudinal cases, construct an analysis of the sequence of events. A display is a visual format that presents information systematically so that valid conclusions can be drawn from the data. Displays can be simple arrays, but might also be event listings, critical incident charts, networks, time-ordered matrices, or taxonomies (Miles and Huberman, 1994). In this thesis, time-ordered charts displaying the process of server capabilities development is used to depict subsidiary development and its drivers (See [Figure 4.3](#) and 4.5 for the two main cases). The main idea is to become familiar with each case as a stand-alone entity, and to allow the unique patterns within each case to emerge before seeking to generalize across cases (Eisenhardt, 1989). That, in turn, provides the depth of understanding that is needed for cross-case analysis.

After an array or display has been constructed, explanation and causality are sought. Thereafter, a set of forces for change and the consequential processes and outcomes are traced. Predictions are made and then data from the case subsidiaries are used to verify them. That involves gathering, in tabular form, the evidence supporting and working against a prediction and examining it (Miles and Huberman, 1994). Similarly, “a display of the most important independent and dependent variables in a field study and of the relationships among them” is presented (Miles and Huberman, 1994, p. 153). In this research these variables include mandate evolution, drivers of subsidiary evolution, trajectories, contextual implications and performance, all of which emerged from the qualitative data.

The systematic search for cross-case patterns is a key step in case research. It is also essential for enhancing the generalizability of conclusions drawn from cases. Data from the case subsidiaries were grouped or categorized and searched for similarities and differences. Furthermore, data was organized by case, by concept, and by time (cf.

Miles and Huberman, 1994), following the research framework in [Section 2.9.2](#). Cross-case analysis was used as a means of seeking support in the data for the generalizability of results.

3.9 Theory development

In this study, initial propositions (see [Section 3.12.2](#)) were formulated to guide the research. New propositions for further research were developed from the data. This research followed the bottom pyramid of Christensen (2006) approach of theory building. Overall themes, concepts and possible relationships between variables (i.e. mandate evolution, drivers of subsidiary evolution, trajectories, contextual implications and performance) emerging from the individual cases were described and measured through an iterative process, i.e. related to the research model (see [Section 2.9.3](#)), theory, and data from the other cases.

3.10 Enfolding theory

In theory development research, it is important to review the emergent theory against existing theory. Following Eisenhardt's (1989), this research builds on asking which findings are similar to or, different from existing theory, and why. Thus, theory that conflicts with the findings was addressed, while theory discussing similar findings helped tie together underlying similarities. As such enfolding of literature enhanced both the quality and the validity of the findings.

3.11 Ensuring quality of research

Because a research is supposed to represent a logical set of statements, the quality of any given design can be judged according to certain logical tests. Yin (2009) offers four tests that can be used to establish the quality of any empirical social research, namely construct, internal, and external validity, and reliability.

In addition, he identifies several tactics for dealing with these four tests when doing case studies. [See Table 3.4](#).

Table 3.4: Case study tactics for the four design tests (source: Yin, 2009).

Tests	Case study tactic	Phase of research in which tactic occurs
Construct validity	<ul style="list-style-type: none"> • Use multiple sources of evidence • Establish chain of evidence • Have key informants review draft case study report 	<ul style="list-style-type: none"> • Data collection • Data collection • Composition
Internal validity	<ul style="list-style-type: none"> • Do pattern-matching • Do explanation-building • Address rival explanations • Use logic models 	<ul style="list-style-type: none"> • Data analysis • Data analysis • Data analysis • Data analysis
External validity	<ul style="list-style-type: none"> • Use theory in single-case studies • Use replication logic in multiple case studies 	<ul style="list-style-type: none"> • Research design • Research design
Reliability	<ul style="list-style-type: none"> • Use case study protocol • Develop case study database 	<ul style="list-style-type: none"> • Data collection • Data collection

Construct validity relates to the establishment of correct operational measures for the concepts being studied. In this thesis, this kind of validity is strengthened by seeking triangulation. Aimed at gaining a fuller perspective on the situation/phenomenon that is investigated, various forms of triangulation have been proposed in the literature (Eisenhardt, 1989; Flynn et al., 1990; McCutcheon and Meredith, 1993; Lacey and Luff, 2001; Guion et al., 2011), including:

- Gathering and analyzing data from multiple sources.
- Using different investigators in the analytical process.
- Using multiple perspectives to interpret a single set of data.
- Using multiple qualitative/quantitative methods to study a phenomenon.
- Using different locations, settings, and other key factors related to the environment in which the study took place, such as the time, day, or season.

This research largely relied on multiple sources of information/evidence, namely document surveys, interviews and observations, which helped avoid respondent and interviewer bias, clarify details, and cross-check responses. Interviewee observation during data collection, the transcription of the empirical data from the semi-structured interviews, inviting key informants to review the draft case study reports (Yin, 2009) and writing case narratives helped developing rich yet transparent overviews of the material, establish chains of evidence, and compare different types of empirical material and, through that, establish construct validity.

Internal validity is the extent to which we can establish causal relationships, whereby certain conditions are shown to lead to other conditions, as distinguished from spurious relationships (Yin, 2009). However, as stated by Yin (2009) this kind of validity is only for testing explanatory or causal studies, and not for descriptive or exploratory studies. Internal validity is not, therefore, considered in the present, mostly explorative, research.

External validity concerns the domain to which a study's findings can be generalized beyond the immediate case study (Yin, 2009). Yin (2009) argues that external validity can actually be achieved in case studies. However, case studies rely on analytical rather than statistical generalization. In order to enhance external validity, theories are relevant in single-case studies, and replication logic is relevant in multiple-case studies. Case studies can be used to generalize regarding theoretical propositions, but not to generalize about populations or universes (Yin, 2009). All the case subsidiaries in this research are located in China and affiliated with Denmark. It seems reasonable to say that the findings and propositions in this thesis may be particularly relevant for Western MNCs that have subsidiary operations in China and possibly other emerging markets. In the case and cross-case analyses, attempts are made to explain the influence of contextual factors underlying the subsidiaries' capability development, but there are no intentions to generalize by extrapolating the results from the cases to, for example, the whole population of MNCs in Western Europe with subsidiaries in Asia. Furthermore, as Christensen (2006) writes, external validity can only be established through categorization. Even though no theory's categorization scheme is likely to achieve a complete status of mutually exclusive and collectively exhaustive categories, the refinements that come from cycles of anomaly-seeking research can asymptotically improve theory toward that goal. Following this line of thinking, this thesis tries to propose corresponding categories, such as internal building, acquisition and external leveraging ties, trajectories of server capability development, relevant contextual factors, and operational performance so as to organize the findings related to the research questions.

Reliability is the extent to which a study's operations, such as the data collection procedures, can be repeated with the same results (Yin, 2009). The objective of reliability is to minimize errors and biases in a study (Yin 2009). In this thesis, reliability is ensured by using triangulation and respondent validation, achieved by

sending the case reports back to the interviewees and asking them to check their accuracy, provide any further comments, and give consent for their use in the research (Lacey and Luff, 2001). Case study protocol and/or case study databases, which enable transparency and the later repetition of procedures by enabling later reviews of the findings, can also be used to ensure reliability (Yin, 2009). In this research project, a case study protocol and case study database were developed before the interviews, in order to enhance the reliability of the case study data (Yin, 2009; Voss et al., 2009). See Appendix for an overview of the topics addressed in the interviews and used to guide the analysis of the multiple sources of evidence mentioned above.

3.12 Research design

A research design is a plan that guides the researcher in the process of data collection, analysis, and interpretation. It is a logical model of proof that enables the researcher to draw conclusions based on causal relations among the variables investigated (Yin, 2009). A research design can be regarded as a research's blueprint; it illustrates the linkages between the intermediary processes the researcher performs to answer her/his research questions. Conventional intermediary processes would normally entail sample selection, data collection, data analysis, validation and discussion of the findings. Hence, Yin (2009), establishes that a research design is the logical plan for getting from here to there, where "here" could be defined as the introductory set of questions to be answered, and "there" is some set of conclusions (answers) to these questions. Thus, research design deals with the justification and manner in which logical problems are solved (Yin, 2009). Yin (2009) suggests, five components of a research design, namely:

- A study's questions.
- Its propositions, if any.
- Its unit(s) of analysis.
- The logic linking the data to the propositions.
- The criteria for interpreting the findings.

3.12.1 Research questions

This study's research question, as expressed in [Section 2.9.1](#) is: *How do subsidiaries successfully develop server capabilities, that is, the capabilities needed to get beyond low cost production, serving home base requirements, and develop access to and start serving their local market?*

3.12.2 Propositions

The role of proposition is to guide the researcher, and give her/him sense of direction. They define where to seek for suitable evidence besides following pertinent theoretical issues (Yin, 2009). In this research, the tentative propositions were supported with existing theory and presented as follows:

P1: The development of server capabilities depends on management decisions, which are based on the management's interpretation of current server capabilities, performance and contingencies (research framework).

P2: Interaction between and joint problem solving by functional departments influence the development of server capabilities in a local subsidiary (Forsgren et al., 2005; McEvily and Marcus, 2005).

P3: Interaction and joint problem solving between HQ and local subsidiary influence the development of server capabilities in a local subsidiary (Forsgren et al., 2005; McEvily and Marcus, 2005).

P4: Managerial and leadership skills plays an important role in the development of server capabilities in local subsidiaries (Smith et al., 2005).

3.12.3 Unit of analysis

In research design, the terms “unit of analysis” and “case” are often used interchangeably (Yin, 2009). Thereby, a research unit of analysis distinguishes data about the subject of inquiry (the “phenomenon”) from data external to the case (the “context”) (Yin, 2009). A study's unit of analysis is determined by setting research boundaries (Miles and Huberman, 1994), and can be determined by frequently asking and answering questions that would in the end help to examine and support the reasons for selecting the stated unit(s) of analysis. This technique was adopted in this study. The unit of analysis of this study is server capability development.

3.12.4 Logic linking the data to the propositions

The logic linking the data to a research proposition expresses the rationale behind the methodical and analytical approaches taken by the researcher to analyze her/his data. A properly ordered and construed logic allows the researcher to conclude if supplementary data are needed or to see where further analysis needs to be done, and makes it easier for researchers to compare different data sets (Miles and Huberman, 1994). In this study, the research framework, company documents and extant literature is used to

define the logic linking the data to the propositions.

3.12.5 Methods for interpreting a study's findings

The criteria for interpreting the findings of a research study differ depending whether the analyses are qualitatively or quantitatively accomplished. For quantitatively analyzed research, there is rich evidence and supporting literature of acceptable criteria for accepting or rejecting research findings. For qualitatively analyzed data, Yin (2009) mentions the use of rival explanations, pattern matching, and explanation building of each considered case, time-series analysis, logic models, and cross-case synthesis as methods for interpreting the findings. Explanation building of each considered case in the form of a case narrative and cross-case analysis of the subsidiaries' server capability development was adopted in this research, and also allowed the researcher to corroborate the validity of the adopted techniques, processes or procedures.

3.13 Research paradigms

Paradigms "typically buttress commonly acknowledged views of individuals or groups of individuals" (Holden and Lynch, 2004). That could lead to diverse standpoints in relation to their framed preferences, faith and convictions (Holden and Lynch, 2004). Put simply, paradigms help us to understand the world. All paradigms are human constructions (Guba and Lincoln, 1994). As such, paradigms are also referred to as a knowledge claim (Creswell, 2008a) or a basic belief system (Guba and Lincoln, 1994) that guides and perfects researchers' actions in deciding on what s/he intends to research, why s/he chooses to do the research, and ultimately how s/he will do the research (Holden and Lynch, 2004; Remenyi et al., 1998). This rationale supports Kuhn's definition that (scientific) paradigm is a "theoretical framework, or a way of perceiving and understanding the world, that a group of scientists has adopted as their worldview" (restated in Hathaway, 1995, p. 541).

This means that paradigms are broadly-accepted, basic philosophies used for validating, altering and understanding conventional and newly-developed fundamental propositions or opinions. There are two main predictable philosophical standpoints that researchers adopt when conducting their research; namely: the positivist and social constructionist perspectives (Remenyi et al, 1998; Tashakkori and Teddlie, 1998). In a positivist world, objects of study are imagined to be objective and are of tangible reality (Remenyi et al., 1998). According to the Auguste Comte's (1853) assertion, all good intellects have

repeated over and over again that there can be no real knowledge except that which is based on observable facts. Hence, positivism is more or less used similarly or interchangeably on the same plane as quantitative paradigms.

In terms of cause-effect analysis, positivists accept that the observed effects are often triggered by independent causes, and that these cause-effect relationships can be conceptualized and understood more clearly with the use of statistical tools and/or methods (Easterby-Smith et al., 2002; Remenyi et al., 1998). Thereby, a positivist approach entails the manipulation of theoretical propositions using the rules of hypothetico-deductive reasoning (Holden and Lynch, 2004; Lee, 1991). As per the social constructionist mindset (which is sometimes tagged as the subjectivist or interpretive perspective), all agreed-upon viewpoints run opposite to positivism. For example, it is noted that it is significantly impossible for researchers not to be subjective or less involved.

Similarly, [Table 3.5](#) summarizes Tashakkori and Teddlie's (1998) interpretation of previous work aimed at explaining the uniqueness of positivism and social constructionism (or subjectivism) respectively.

Table 3.5: Key research implications for choosing the right methodology (source: Tashakkori and Teddlie, 1998).

Axiom	Positivism	Social constructionism
Ontology: assumptions about the nature of reality	There is a single reality	There are multiple constructed realities
Epistemology: relationship between the knower and to be known	Independent	Knower and known are inseparable
Axiology: role of value in inquiry	Inquiry is value free	Inquiry is value bound
Generalizations	Time and context free generalizations are possible	Time and context free generalizations are not possible
Causal linkages	There are real causes that are temporarily precedent to or simultaneous with effects	It is impossible to distinguish causes from effects
Research logic: Inductive or deductive	Deductive: Emphasis on arguing from general to particular	Inductive: Emphasis on arguing from particular to general

Easterby-Smith et al. (2002), adds a range of additional observations (See [Table 3.6](#)).

Table 3.6: Comparison between positivism and social constructionism (source: Easterby-Smith et al., 2002).

Features	Positivism	Social constructionism
The observer	Must be independent	Is part of what is being observed
Human interests	Should be irrelevant	Are the main drivers of science
Explanations	Must demonstrate causality	Aim to increase general understanding of the situation
Research progress through	Hypothesis and deductions	Gathering rich data from which ideas are induced
Concepts	Need to be operationalized so that they can be measured	Should incorporate stakeholder perspectives
Units of analysis	Should be reduced to simplest terms	May include the complexity of whole situations
Generalization through	Statistical probability	Theoretical abstraction
Sampling requires	Large numbers selected randomly	Small numbers of cases selected for specific reasons

According to Holden and Lynch (2004), these types of tables can be used to show key research indications and perspectives for choosing the right research methodologies. Based on the above suggestions on research paradigms, this thesis adopts the social constructionist view because the researcher demonstrates the features of social constructionist presented by Easterby-Smith et al., (2002) in [Table 3.6](#).

3.14 Chapter summary

This chapter introduced the design and methodology used in this research to solve the research questions presented in Chapter 2. Christensen's (2006) model was established as the theoretical foundation, based on which a detailed design of the research reported in this thesis was developed. Given the exploratory nature of the study, a qualitative, and more specifically, case study methodology was selected as an appropriate approach in terms of its relevance for building theory on “*how*” questions. A structured process proposed by Voss et al. (2002) was then followed in this thesis to conduct the case studies; this involved several steps:

- Determining to use case research.
- Developing the research framework, constructs, and questions.
- Choosing the cases.
- Collecting data.

- Analyzing the data.
- Ensuring the quality of the research in particular construct and external validity and reliability.

Details of each step were presented in order to explain how the research was done.

Chapter 4 Case descriptions and within-case analysis

4.1 Introduction

This chapter aims to provide a comprehensive description of each case of subsidiary development, including a brief overview of the case subsidiary, the evolution of its international operations, initial mandate gain and evolution as well as a description of server capability developments and future outlooks for related subsidiary mandates. The outcome of relevant within-case analysis techniques will be outlined for each case. While key information about the evolution of the subsidiary helps to quickly obtain a broader picture of the main patterns, the identification of drivers of subsidiary development enables the researcher to develop a fundamental understanding of what caused server capability development to unfold in a specific manner. Finally, trajectories representing the paths to capability development are presented, allowing for different perspectives from the parent company and the focal subsidiary on causes and effects related to the server capability development in local subsidiaries. The following case descriptions already constitute a summary and interpretation of all the raw data that was collected in the course of this study. As described in detail in the previous chapter, the data are drawn from a set of data sources, such as company documents, annual reports or corporate websites, and semi-structured interviews with representatives from the local subsidiaries. As introduced in Chapter 1, twelve preliminary cases were chosen based on criteria formulated in [Section 4.2](#); they were all preliminarily analyzed, which gave useful insights for data analysis but only eight cases were transcribed (the key characteristics of the eight cases are presented in [Table 4.1](#)). The eight cases that were transcribed were limited to the Sino-Danish context and insights from those cases led to the development of the two main cases, that is Case 1 and Case 2, due to research control considerations, multiple accesses to the local subsidiaries and greater depths of case examination. The remaining six mini cases were used in the data analysis. The case findings are mainly limited to the subsidiary perspective.

4.2 Cases of server capabilities development

As outlined in Chapter 1, the present study involves two main cases of server

capabilities development at Danish MNCs' subsidiaries active in the machinery or industrial components production. This chapter presents the trajectories through which the two Danish subsidiaries developed the capabilities to access the local market context while leveraging on existing investments. The evolution of these subsidiaries is traced retrospectively and detailed information on these subsidiaries is listed in [Tables 4.1](#) and 4.2

Both case narratives begin with a general introduction to the background and operations context of the case company. Then, the ways in which the two subsidiaries developed their server capabilities are described. The evolution, as well as changes in strategic role, is tracked from the 1990s to today. Other operations network-related information is mentioned too. Moreover, in order to answer the research questions presented at the end of Chapter 2 and understand the interactions over time between the subsidiaries and their respective HQs, as well as between the subsidiaries and the external networks they are part of, the focal subsidiary and the server capability development of each case subsidiary are analyzed at the end of each case study in terms of the aspects shown in Table 4.2. Likewise, a figure of the drivers of each subsidiary development is also presented at the end of each case study, which provides a within-case illustration of contextual factors, coordination at the subsidiary and performance.

Table 4.1: Key characteristics of the case subsidiaries.

Subsidiary	Alpha	Beta	Gamma	Delta	Epsilon	Zeta	Eta	Omega
Size (employees)	2,100	18,776	2,036	150	64	35	4000	300
Market	Machinery/equipment industry	Machinery/equipment industry	Hospitality, property development, retail and automobile industry	Building industry	Furniture manufacturers, design houses	Glass fiber composite industry	Casting and machining industry	Electromechanical industry
Product	Compressors	Pumps	Luxury audiovisuals and multimedia solutions.	Wooden/metal components and solutions	Fabric development, cut and sew, customized products	Wind turbine components, structures	Hubs, base frames, shafts, bearing housings	Flexible copper bush bars, modular systems for making electrical panels, customized solutions
Product complexity	High complexity	High complexity	High complexity and high tech	Low complexity, standard components	Ranging from simple to complex	High complexity	High complexity	High complexity
Product variety	High	High	High	Medium	Medium	High	High	High
Date of Chinese subsidiary inauguration	2008	1994	2011	2006	2003	2009	2008	2009
Value adding activities	R&D, direct touch, production, marketing & sales, value selling	Production, R&D, good distribution networks, partnerships, marketing & sales, cross functional collaboration, after sales service	Project planning, distribution, marketing & sales, cross functional collaboration, partnerships, after sales service	Development, production, sales, sourcing, partnerships, strategic planning, cross functional collaboration	Sourcing, production, sales, key account management, cross functional collaboration, partnerships	Local sales, sourcing, engineering, production, cross functional collaboration, partnerships	Sub-assembly, metal finishing, production, cross functional collaboration, partnerships	Production, cross functional collaboration, partnerships
Operational characteristics	Quick delivery, good quality, cost efficiency	High flexibility, quality, short delivery time, cost efficiency	Cost efficiency, quick delivery	Cost efficiency, good quality, timely delivery	Standard quality, cost efficiency, and short delivery times	Cost efficiency, good quality, timely delivery	Cost efficiency, stable quality, quick delivery, high flexibility	Good quality, cost efficiency, quick delivery, high flexibility

Table 4.2: Terms used for data analysis and related operational measures.

Feature	Variable	Operational measure
Context	Contingencies	<ul style="list-style-type: none"> HQ: Control, decision-making power and resources availability. Market: Where products are sold that is, market served by a subsidiary. Industry: Sector which industrial components belong to. Strategy: Decision making processes.
Basic subsidiary information	Size of subsidiary	Estimated by the number of employees: small: 0-50 employees; medium: 50-250; large: more than 250
	Products produced in the subsidiary	In terms of variety and volume <ul style="list-style-type: none"> Variety: the types of products produced Volume: the amount of product produced per year
	Operations of the subsidiary	In terms of scope and complexity <ul style="list-style-type: none"> Scope: the types of operations held Complexity: identified according to product complexity
Strategic roles of subsidiary	Mandate gain	Identified according to the definitions proposed by Ferdows (1989, 1997b)
	Mandate evolution	Identified according to the definitions proposed by Ferdows (1997b)
Performance	Operational performance	Cost, quality, delivery and flexibility.

4.3 Case 1: Alpha

4.3.1 Background

Alpha is an original equipment manufacturer. The company focuses on the development, application and support of advanced technologies for leading products and businesses globally. In 2012, it has approximately 2,100 employees across all its sites, including 3 production facilities in Europe and 1 production facility in China. The production facilities follow the same manufacturing practice and approved quality control systems. Alpha sells its products through its parent company's sales and distribution channels all over the world. The company is committed to meeting market requirements and customer needs worldwide. As such it has globalized operations, to secure delivery, reliability, flexibility and improved quality. With its core applications in areas such as household, light commercial and mobile, it creates and supports solutions that set the performance standard for industrial component businesses around the globe. At the same time, the company offers its customers product innovations as well as supporting consultancy and development services with respect to the application and use of industrial components. As such it shapes its customers' business and marketplaces and it is identified as a fast, responsive, straightforward and reliable long-term partner that is committed to constantly increasing value for its customers. A

continuous technology transfer takes place between the business areas, allowing the market potential of innovations to be leveraged across all segments. Alpha has large corporations as direct and indirect customers and is able to serve the requirements of its customers and their customers due to its more than 50 years' experience with industrial component technology.

4.3.2 Evolution of Alpha: international operations

In 1993, Alpha founded a production facility in Slovenia so as to expand its operations in the European region. The establishment of that subsidiary was mainly aimed at taking advantage of low cost labor and geographic proximity to customers. Subsequently, an engineering function was established there as well in order to allow local modifications and to support production. Such local modifications include changes made in drawings, bills of material and/or specifications that influence the product or process. HQ played a supporting role in developing the engineering capabilities in Slovenia and supervised all proposed product modifications using a four-eye approach. Later, in 2002 Alpha established operations in Slovakia and decided to build another production subsidiary there primarily for low cost reasons. That subsidiary gained more responsibility as assembly lines, machining and stamping activities were offshored there. In effect, the Slovakia subsidiary transformed from following strict production procedures from HQ to adapting its operations to local requirements, making its own suggestions for process improvements. Decision-making still resides at HQ as far as product modifications and quality are concerned.

With about 120 employees mainly in the development function, HQ plays an important role at Alpha, with new products and technologies continually being developed to benefit its customers. Headquarters remained in Denmark for four reasons. First, it is strategically important for Alpha to provide stable job opportunities to the Danish labor market. Second, having the role of a lead company, the Danish HQ develops many highly complicated and high-tech products that cannot be developed elsewhere, because none of the other subsidiaries has the relevant capabilities. Third, in order to protect intellectual property rights (IPR), some products are still developed in Denmark because it is a better place to protect IPR compared to other Alpha subsidiaries. Fourth, the capacity of the Slovenian and Slovakian subsidiaries are not developed enough to deal with the whole European market. However, Alpha has set its operations target to maintaining a stable capacity in Western Europe while expanding in other markets

internationally. In 2013, Alpha acquired another company in Austria (also in the industrial components business) which offers a technology leading product portfolio, an innovative research and development team as well as highly advanced manufacturing technology. The acquisition is informed by the noticeable trend towards a significant increase of energy efficiency in appliances that use industrial components as one of the key areas of growth due to higher demands from regulatory requirements on energy efficiency and as a result of rising electricity prices. With respect to the acquisition, Alpha is now “one of the largest independent manufacturers of industrial components in Europe with a world-leading innovative strength” and it plans to strengthen its own market position significantly across its subsidiaries. The increasing welfare of wide population segments in emerging countries, which have started to invest in standard appliances that use industrial components, poses a benefit for Alpha if the company would succeed in capturing such opportunities and expand its international operations.

4.3.3 Initial mandate gain and evolution in China

Low cost of labor and operations, together with avoiding fluctuations in exchange rates were the strategic reasons for Alpha’s offshoring and establishing a production facility in China in 2008. However, the finances to set up production were lacking. A venture capitalist with experience in industrial components technology was approached and the investment was made after several qualifying business pitches. Thereafter, the Chinese subsidiary went through various stages in its development to set up the new subsidiary to operational level. In order to run operations profitably, Alpha hired a general manager, a Dane with lots of experience in industrial components manufacturing, who quit in less than a year due to lack of cultural knowledge and communication frictions with the employees. Another general manager (a Singaporean) with managerial experience albeit not in the industrial components sector was hired but also resigned in less than a year. So, within two years two general managers were changed until the present general manager, who was a deputy GM was promoted to her present position. The GM has the formal education, experience in manufacturing industrial components, knowledge of existing products, and marketing profile needed for the job and, as opposed to her predecessors; she is a Chinese citizen, which allows him to take advantage of the Guanxi network.

Subsequently, Chinese managers were sought with experience in the key areas of purchasing, process engineering and operations. In addition, there was a lot of people

mobility from other Alpha subsidiaries to the Chinese subsidiary to provide assistance in the development of operations and a supplier network. The latter appeared to be a challenge: it was difficult to find capable suppliers for materials and equipment and to develop a smoothly functioning supply chain. Alpha managers contacted several foreign companies in China to enquire about their sources of equipment. Then the capabilities of many potential suppliers were evaluated. Some of the suppliers were visited and thereafter invited to submit quotations. Initially more than 80% of the local suppliers met Alphas' requirements. Some process specialists were deployed from HQ to help the suppliers that did not meet the requirements initially.

The suppliers selected were those who were accustomed to western culture based on experience gained from working with other western companies or from activities in Europe or America, and possessed sufficient capacity to cope with Alphas' demand. The frequency of expert mobility from HQ to the subsidiary was reduced after capable suppliers were selected. Thereafter, the subsidiary began with producing simple products and evolved to higher strategic roles gradually, as it was assigned more responsibilities when it considerably improved its quality level and began to be profitable. That required production capability as well as capability for technical maintenance and process improvements. A large number of blue collar employees were recruited and trained in-house to perform the production tasks. In addition to that, production manager positions were filled by white-collar employees with the necessary formal education and professional experience in production activities to support the blue-collar employees with advanced production capability. In 2009, an R&D and a technology center were established in China to support global product development, to support operations and speed up the development of local products. However, the company's R&D was set up in China by an expert from HQ and stationed in the subsidiary for a fixed term. The expert had formal training, experience in R&D and managerial skills in the machinery or industrial component sector. Thus, the expert was competent in building the capabilities suitable for local R&D operations through learning by doing and cross functional collaborations. The R&D manager serves as a bridge between Danish HQ and the Chinese subsidiary to facilitate accurate knowledge transfer and to ensure that communication from employees on both sides was well comprehended without misunderstandings, much time loss and effort wastage. That was possible because the expert R&D manager has worked in Denmark originally with most of the R&D employees in Denmark and knew them quite well before been deployed to

China.

The Chinese subsidiary is expected to employ more than 47 engineers in the R&D/technology function within its facilities to foster product development and adaptations. Today, the Chinese subsidiary has more than 760 employees with increased sales revenue in 2011 and is expected to generate more sales. However, sales performance dropped in 2012 due to a re-organization in the parent company. That was also due to lack of sufficient product and customer knowledge of the newly allocated employees from the parent company who took over the selling of products. So, Alpha started to build a sales force directly in China to secure its sales performance. To achieve that, an employee from the quality function was pulled to start the sales function as the Sales & Marketing Director (SMD). The SMD did not have any previous sales experience and he and other newly hired sales employee were trained by the employee who was responsible for sales before the parent company's re-organization took place. The training was through learning by doing and close interactions with other employees from different functions. To achieve better sales performance, several initiatives were adopted by Alpha. First, the products were sold in China through direct sales, distributors and original equipment manufacturers (both local and global OEMs). Second, key account managers for the north and south of China were hired with sales experience and knowledge of the industrial components production sector. Third, value selling was proposed to customers, which includes increased distributor's market share, optimizing systems, total cost of ownership of products i.e., system cost, maintenance cost, running cost. An example of value selling is visiting customers together with distributors to increase the customer's product knowledge and to build trust in Alpha's products and its team. That is because distributors lack better product and application systems knowledge. Fourth, direct touch models (HQ's concept) were adopted, that is, using distributors to serve some OEM customers. Direct touch has proven successful because it has helped distributors to grow their business and provided customers with the opportunity to access Alpha for available services and solutions. Distributors can get good price (discounts) during the low season since they need to keep stocks and low season occurs during winter. Although there are rules/policies to control distributors (e.g. sales limitation meaning that distributors cannot sell below a set price level). With the aforementioned actions, sales performance has improved rapidly with a good team developing the market, lost businesses won back, a strong brand in the local market and sales performance exceeding the budget.

In the process, the Chinese subsidiary's mandate changed from an offshore site with focus on low cost production to a server with focus on accessing the local market. Alpha found ways to develop existing subsidiaries from their operational level and to coordinate its international operations networks. It transferred more production and process development from HQ to the Chinese subsidiary. It deployed people based on the need for experts with specific capabilities to the Chinese subsidiary. Vice versa, employees newly hired by the subsidiary were moved to HQ to learn about the products and processes for more than half a year. Such employees were trained by specialists who themselves were trained at HQ. At the start, direct operations people from HQ moved to China to help in getting the operations started. Most of the standard operating procedures used were documented in English language so as to ensure common understanding and thereafter the documents were translated into Chinese. Having established strong offshore operations, Alpha's Chinese subsidiary now seeks to access the local market due to its market potential. The strategy is that the subsidiary operates as an offshore and server subsidiary simultaneously. Though Europe is Alpha's main market, the local Chinese market is growing rapidly. At the moment this strategy is developing and Alpha's operations are organized in an international network of collaborating functional units. The Chinese subsidiary is big enough to enable rational operations and able to maintain a high level of customer focus and cross-functional collaboration between employees across different functions. Similarly, the management focus is shifting to producing only the most essential parts in-house, including assembly and outsources the rest of the production activities. [Figure 4.1](#) represents the process flow of operations in Alpha.

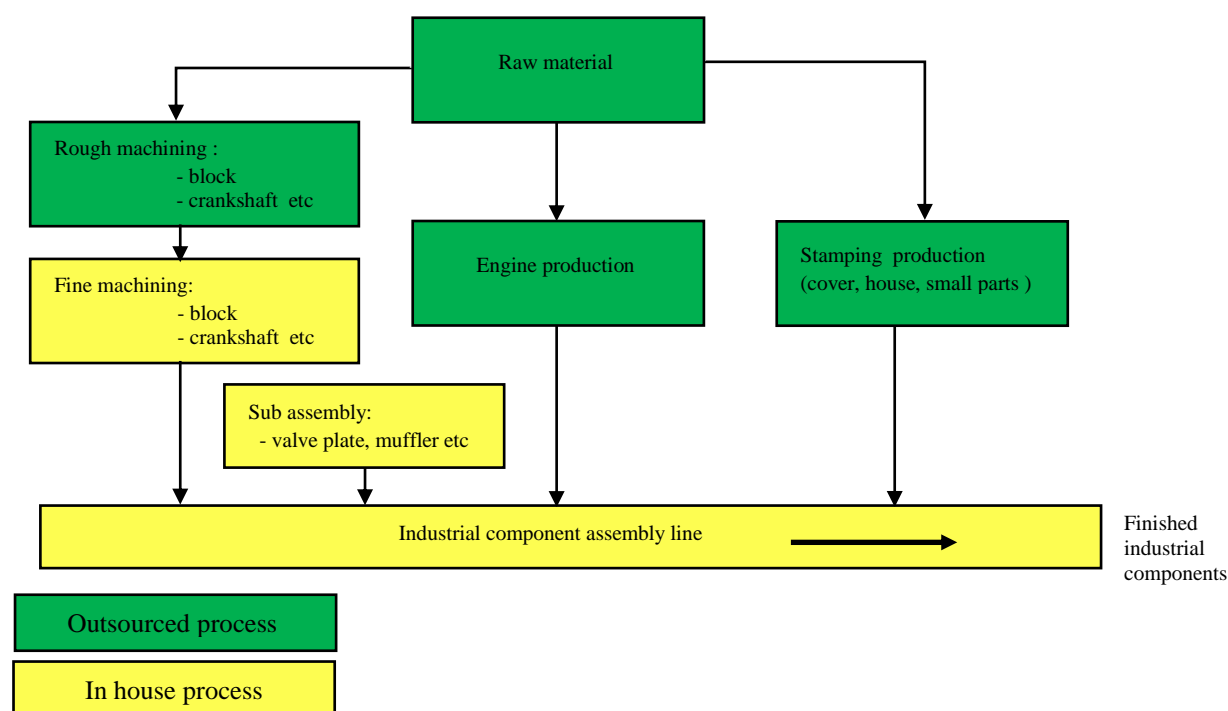


Figure 4.1: The role of production and process-flow in Alpha (source: Alpha).

The ratio between in-house production and outsourced units of the industrial components production has increased from 50/50 in 2008 to approximately 90/10 in 2011, due to improved purchasing and supply development capabilities. This means that the company produces products and components containing technologies that are strategically significant and outsources the production of other products and components to competitive suppliers and/or acquired companies in order to ensure prompt delivery. That further signals a change on the mindset of Alpha from making almost everything in house to more dependence on partnerships. Hence, making it possible for Alpha to produce more new products and extend its sales/distribution channels.

Alpha's strategy to penetrate emerging economies has led to significant changes in the organization. It went through different paths in order to serve the Chinese market. Low cost of production is the main reason why Alpha began operations in China in 2008. After some changes a general manager was recruited; with lots of experience in the sector of industrial component production, a strong marketing profile and being a Chinese - the GM took advantage of the Guanxi network (an important concept in China) to gain business opportunities and to relate to the Chinese business environment. The GM could provide professional managerial capability and foster good

communication with employees based on acquired formal education and experiential knowledge gained from many years of working experience together with strong marketing initiatives within industrial component production. Today, the Chinese subsidiary mainly serves the European and Chinese markets. Initially, however, the subsidiary had insufficient production capabilities. So, the human resources function recruited some white collar-employees who had a formal education and professional experience from other western companies. Alpha leveraged on that advantage because that made it easier for these employees to understand how western companies act. Later, the parent company provided technical support, initial technology transfer and mobility of expert employees from HQ to train the employees at the subsidiary which advanced the skills of the local employees and enabled the subsidiary to cope with the production of simple products.

Some of the trained employees were also transferred to HQ for some months to gain trust because if trust is gained from both sides then knowledge could be shared without much fear. Similarly, it was to acquaint themselves with their colleagues at HQ so as to encourage clear communications and to acquire co-operation skills. As such, most of the training sessions were through solving operational challenges together and cross functional collaboration across various functions. That advanced the technical skills of the employees and verified the assimilation of the routines they had learned to maintain technical processes. Similarly, suppliers that had experience working with western-based companies were used and initially coupled to local suppliers by supplier development specialists from HQ. That gave the local suppliers the ability to source and handle local logistics properly. As the subsidiary developed, Alpha identified the opportunities in the Chinese market and expanded its business focus by introducing its most recent household applications so as to serve the Chinese market better. Based on a new platform, the new series of household products were a significant upgrade to a range that covers the entire field of household appliances. The new series was 50% more silent than comparable products, which offered a substantial advantage in applications that rely on low noise operation, and also more energy efficient. This helps household appliance manufacturers, who are always looking for ways to improve the energy efficiency of their products with the smallest possible investment in today's global competition, to save considerable R&D and production resources.

In 2010, Alpha started to serve the Chinese market through direct sales, distributors and

original equipment manufacturers, though still leveraging on the parent company's sales and distribution channels. Similarly, newly hired sales employees were trained through learning by doing and close interactions with other employees from different functions to gain cross-functional skills. Key account managers were hired with sales experience and knowledge of the industrial components sector, while value selling and direct touch concepts were also adopted to develop marketing & sales skills of the new employees. The new employees were from China since the local language is essential to sustain customer relationships. In 2010, a venture capital investment with experience in industrial component production was made to develop operations and prevent business risks. The venture capital provided a source of finance for Alpha's operations. A finance manager (FM) with professional and relevant certifications in finance was recruited in order to enhance the cash flow of Alpha's operations, to deal with tax related issues and to handle transactions involving multiple currencies. Similarly, the finance manager set targets to ensure the achievement of key performance indicators such as cost-to-produce, capacity costs and total costs of materials and direct wages. The FM also followed up on accounting standards, new tax laws, documentation of claims, quotes, and vouchers filed for legal purposes and for improving work efficiency and quality.

The mandate of the Chinese subsidiary has evolved to being an offshore and at the same time a server. The Danish HQ is still the lead facility in Alpha, developing and producing many highly complex and high-tech products. [Table 4.3](#) presents the key information about the evolution of Alpha, HQ and its networks while [Figure 4.3](#) presents the drivers of Alpha's development. Today, Alpha's operations are organized in an international network of communicating and collaborating cross-functional units. Europe remains the main market and the Chinese market is rapidly developing. Using Ferdows (1997b) model as a template, the operations at Alpha's subsidiary in China, the trajectory of capability development and paths to higher strategic capabilities along subsidiary role changes are depicted in [Figure 4.2](#). Key information about the evolution of Alpha, HQ, and network is summarized in [Table 4.3](#).

4.3.4 Analysis of Case 1: Alpha – from global towards local operations

Alpha started as an offshore production facility in 2008 due to HQ globalization strategy. A Chinese general manager was promoted from her position as a deputy manager in order to set up proper directions and to help with decision-making that leads Alpha to profit. The choice of that general manager was to be able to overcome the

challenges associated with cultural knowledge, communication frictions with the employees, managerial experience and local network access. Alpha leveraged the supplier development capabilities of HQ, in order to surmount the difficulty of finding capable local suppliers for materials and equipment; and to develop its own local employees to handle local purchasing, process engineering and operations. Educated workers together with technical skilled workers were recruited to provide professional experience, production capabilities suitable for producing simple products and to maintain technical processes. In 2009, a R&D center was established to support global product development, to support operations and to speed up the development of local products. That was possible by deploying an expert from HQ to the subsidiary on a fixed term in order to develop the R&D skills of the local workers. In 2010, Alpha continued producing but added local sales and market understanding in order to serve the local market. This transition was enabled by contextual (i.e. access to market related) enablers that is, product, process and knowledge transfer were strengthened by subsidiary strategy to serve local market. Hence, local marketing and sales workers were recruited to establish and foster local relationship with customers and suppliers and any relevant information in terms of local customer demands was relayed to the management teams-to be channeled to the appropriate department. For Alpha, building the capabilities to serve the local market has been an expansive stepwise process and the progression is slightly different from Ferdows (1997b) framework. The lack of sufficient products and customers' knowledge by the newly recruited sales workers led to poor sales performance. Learning by doing approach and interactions with other employees in different function were adopted to gain more local, products and customers' knowledge in order to serve the local market well and to achieve better sales performance. Thus, Alpha gained mandate as a server role in 2012 and due to the availability of capabilities, it could support global product development and take more responsibilities. In that regard, Alpha has built capabilities beyond that needed for a server role (server capabilities).

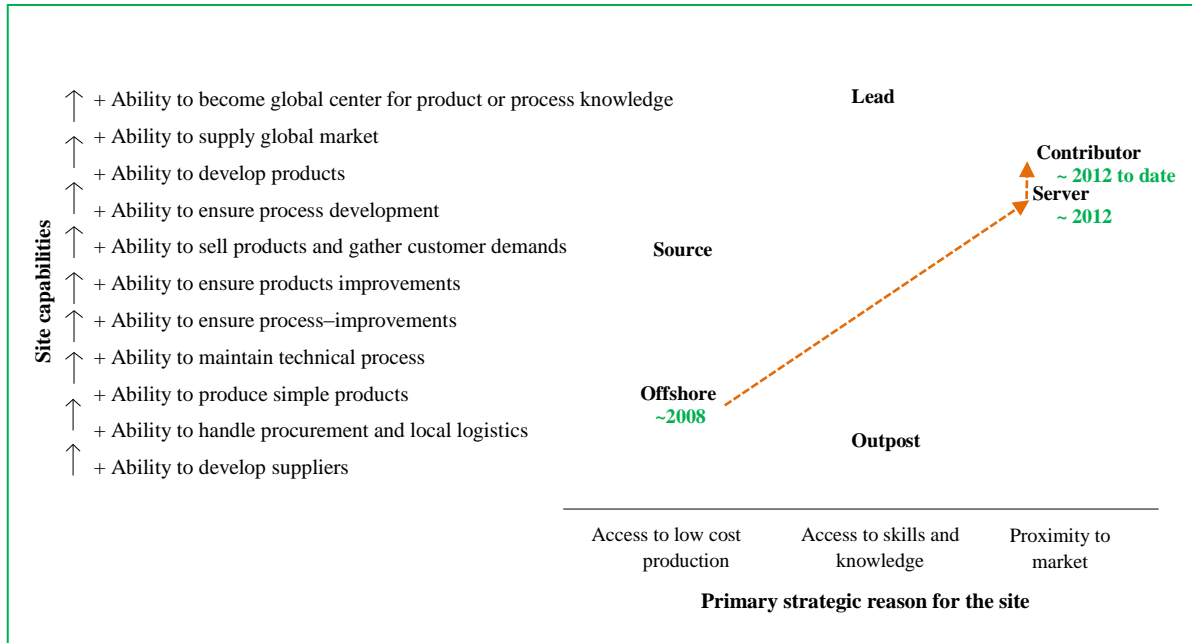


Figure 4.2: Trajectory of server capabilities evolution at Alpha (template based on Ferdows, 1997b).

4.4 Performance

Presently, Alpha has improved sales performance and improved operational performance owing to the development of server capabilities. As such server capability development is an alternative to enhance performance. Alpha's operational performance is improved as revealed by improved customer satisfaction, positive financial result and employee growth. Operational performance was enhanced by clear goal setting and quarterly performance reviews using KPIs such as: quality, productivity and safety (as against yearly review in some multinational companies). A reward system like bonus (about 8% of basic salary in a quarter) is linked to employee performance. In 2012, a detailed order handling process was set up and that has improved delivery reliability (at least 10% increases).

Table 4.3: Key information about the evolution of Alpha, HQ and its networks.

Year	Sites	Size	Product		Operations		Market served	Strategic role	Network configuration	Degree of coordination
			Variety	Volume	Scope	Complexity				
~ 1990s	Danish Affiliate	Big	All components/products	High	Full operations	High	European	Lead	HQ exporting	N/A
1990s	Danish Affiliate	Big	All components/products	High	Full operations	High	Global	Lead	Production strategy; globally integrated	High
	Slovenia subsidiary	Small	Simple products	Low	Assembly; basic processes	Low	European	Offshore		
2008	Danish Affiliate	Small	High-tech products; most of products for Europe	Low	R&D; supporting functions	High	Global	Lead	Production strategy; market focus strategy; globalized	High
	Slovenia subsidiary	Small	Simple products for EU	High	Part of operations	High	European	Offshore		
	Slovakia subsidiary	Big	Simple products for EU	High	Part of operations	High	European	Offshore		
	Chinese subsidiary	Medium	Simple products for Asian markets	High	Localized R&D; early stage operations	High	Asian	Offshore		
2011	Danish Affiliate	Small	R&D; support functions	Low	R&D	High	Global	Lead	Production strategy; market focus strategy; globalized	High
	Slovenia subsidiary	Small	Simple products for EU	Low	Component supply	Low	European	Offshore		
	Slovakia subsidiary	Big	Simple products for EU	High	Consolidated operations	High	European	Offshore		
	Chinese subsidiary	Big	All components/products; Simple products for Asian markets	High	Localized R&D; full local operations	High	Asian; Global	Offshore & server		

Drivers of subsidiary development (Alpha)

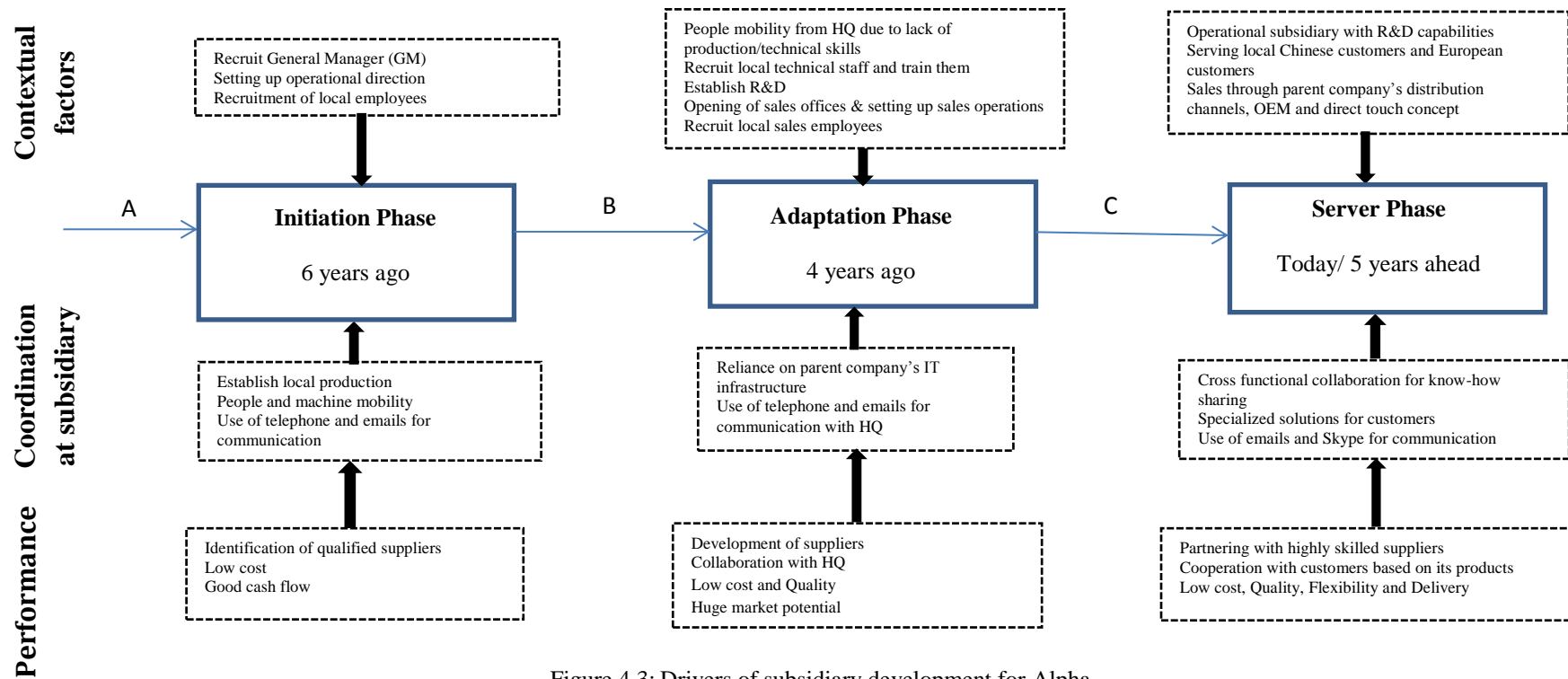


Figure 4.3: Drivers of subsidiary development for Alpha.

Drivers

- A - Corporate strategy; Managerial skill; Reconfigure operations; Cost seeking or cost related reasons (e.g. low tax rates)
- B - Local environment; Sourcing /supplier development; Market maturity; Resource availability (e.g. local sourcing competency); availability of IT infrastructure; Cash-flow
- C - Market access; Subsidiary choice (e.g. increased autonomy); Quality compliance; Marketing & Sales; Financial control; Willingness to explore and exploit new business opportunity; Availability of NPD capabilities; Global key account management

4.5 Case 2: Beta

4.5.1 Background

Company Beta was established in 1945. Today, Beta has an annual production of more than 16 million industrial components units and is one of the world's leading original equipment manufacturers, covering approximately 50% of the world market. Its major products include circulator components for heating and air conditioning and other industrial components for water supply, wastewater, and dosing. In addition to industrial components, Beta develops, produces, sells and services normal and submersible motors and state-of-the-art electronics for monitoring and control of industrial components. Beta sells its products in a large number of countries through local distributors. Since 2000, Beta has grown rapidly by acquiring two to three companies every year. In 2011, Beta had about 85 companies in more than 55 countries. At the end of 2011, its turnover was DKK 21.166 billion (2.84 billion Euros = 3.85 billion USD) and its profit was DKK 1,250 million (about 168 million Euros = 227 million USD). Today with over 18,700 employees, Beta aims to "successfully develop, produce and sell high-quality industrial components and systems world-wide, contributing to a better quality of life and a healthy environment." The vision of Beta is formulated in its innovation intent for 2025, which indicates a global group with 75,000 employees, whereby one third of the turnover is generated from products other than industrial components. However, industrial components will remain Beta's core business and it will continue to develop new sustainable technologies and solutions within that area.

4.5.2 Evolution of Beta's international operations

Beta began the expansion of its operations in the 1960s and that was in the European region. Germany became the first country into which Beta expanded due to geographic proximity. Many sales companies were set up, which were only responsible for sales and parts of assembly. At that time, all of the components and most products were still produced in Denmark. In 1996, Beta established operations in Hungary and decided to build a new production subsidiary there primarily for low cost reasons. It took three years for the Hungarian subsidiary to practically begin its operations. The delay in the commencement of the operations was due to: (1) the decision on where to build, which took one year; (2) building the plant, which took another year; and (3) transferring products to new plant (ramp-up), which also took a year. The subsidiary only produced

simple products at the beginning, but after 10 years of development it had become the second largest subsidiary in Beta, with about 2,000 skilled employees, principally serving the Eastern European and Russian markets. Presently, that subsidiary has the competencies to produce more complicated and high-tech products with the same quality as those produced by the Danish HQ.

Along with the subsidiary's growth, more and more products were transferred from Denmark to Hungary. However, with about 5,000 employees the Danish HQ is still the largest site in Beta. There are four reasons for that. First, it is strategically important for Beta to remain in Denmark and provide stable job opportunities for its employees. Second, having the role of a lead company, the Danish HQ develops and produces many highly complicated and high-tech products that cannot be produced elsewhere, because none of the other subsidiaries has the relevant capabilities. Third, in order to protect intellectual property rights, some products are still produced in Denmark. Fourth, the capacity of the Hungarian subsidiary is not developed enough to serve the whole European market. Notwithstanding, Beta has set up its operations target as maintaining a stable capacity in Denmark and Western Europe while expanding internationally.

4.5.3 Initial mandate gain and evolution in China

The strategic reason for penetrating China was the attractiveness of the Chinese market in terms of its potential and size as well as the low cost advantage of running operations. In order to get access to that market, Beta established a sales office in Shanghai in 1994, which was not only responsible for sales, but also for assembling components received from the Danish HQ into final products. Beta later grew to have sales offices in each region of China to support its customers. Hence, the drive for sales capability to serve the various regions became important. To cater for that, local recruits with sales experience in general or that specific to the equipment/machinery industry were employed in each region to manage that specific region. That is because it is difficult for local recruits to manage regions different from theirs due to lack of specific regional market knowledge. Recruiting expatriates for sales is difficult as well due to Chinese language barriers, since the local language is essential to sustain customer relationships in China. In 1995, the decision was made to build a subsidiary on the east coast of China and start production there in order to be close to a market that represents 25% of the company's global sales, grows with 21% per year and will in 2025 have the same buying power as the US (USD 300Million).

In order to set up the new subsidiary to serve local demands and ensure profits, managerial capability by a senior manager was deployed to China from Beta's international operations. The Chinese subsidiary went through various stages in its development. Initially from producing simple products, the subsidiary evolved to higher strategic roles gradually, and was assigned more responsibilities when it considerably improved its quality level. That demanded production capability, which was filled by recruiting white-collar employees with formal education, professional experience and technical skills as well as blue collars to perform the production tasks. The challenges of having an effective supply chain were great. That is, finding local suppliers with the right capabilities was difficult in China. Hence, suppliers who had worked with western companies and with the right investment were used. In 2007, an R&D center and a technology center were established in China to support global product development, ramp up production and speed up the development of local products (the time from business case to market launch is normally three to four years which is too long in the local market). However, the company's R&D was set up in China by a senior employee without formal training or experience in R&D, although he had managerial experience in the equipment/machinery industry. Therefore, it took a lot of time to build the competences suitable for R&D operations. That R&D manager served as a bridge between Danish HQ and the Chinese subsidiary to facilitate accurate knowledge transfer and to ensure that communication from employees on both sides was well comprehended. That was possible because the R&D manager had worked in Denmark as a rotation engineer (moving across the various functions in Denmark) before he was deployed to China.

Today, the Chinese subsidiary has more than 714 employees with a sales revenue of DKK 1.6 billion (215 million Euros = 291 million USD) in 2011, and is expected to grow further. In the course of time, the Chinese subsidiary is expected to employ more than 200 engineers in the R&D and technology centers, and have five more facilities. Though the Chinese subsidiary is considered to have the competencies to produce, many products for the Chinese market are still imported from the Danish subsidiary for three reasons. First, the capacity of the Chinese subsidiary is not developed to cater for the large Chinese market. Second, in order to protect IP rights, Beta chooses not to produce certain products in China to prevent imitation, though the Chinese subsidiary has the capability. Third, the Chinese subsidiary is still lacking capabilities to produce some highly complex products and to adapt some products to satisfy local customers.

In an attempt to optimize its operations network, Beta was not only able to build up a new subsidiary to operational level and develop existing subsidiaries in order to serve local requirements, but also had the capability to relocate products and processes among specific subsidiaries. It mobilized people as well, based on the need for experts with specific capabilities in any of the subsidiaries. These relocations were usually handled by the business development department in response to the dynamics of the competitive environment. People, product and process relocations can be affected by many factors. One senior manager recalled: “We moved to China so as to serve our local customers and to have a footprint in the fast growing Chinese market. China is also politically stable and has a great business environment (such as adequate infrastructures and strong governmental support)”. According to the same manager, China might not be the best choice today, principally for companies aiming for a low-cost advantage. He proposed that those companies might find low-cost advantages in other Asian countries, such as Vietnam, Cambodia or Malaysia. Although Beta has the resources and abilities to move any production line from one location to another, it follows another strategy: “Move to one place, stay and develop there”. Today with two production companies, two sales offices, two distribution centers, one R&D center, 15 liaison offices, 65 other service centers and 147 license dealers in China, the local operations of Beta are strong. Germany is the biggest market, followed by Russia. Simultaneously, America and China are two important markets having similar buying powers. China is specifically tagged as Beta’s second home market due to its huge market size and annual growth. In order to cover the main markets, the operations network of Beta is made up by three regions, i.e., Europe, America, and Asia. The strategy is that Beta’s regions should operate independently from each other in future. That is to say, there will be few component or product flows between regions.

At the moment, this strategy has not been realized entirely. As the subsidiaries in China have limited capabilities, it is still essential to export some products from Denmark. However, a project has been initiated to address capability development, and reorganize and optimize the operations network under the guidelines of the international strategy. Beta’s operations are organized in an international network of collaborating functional units. Each production unit should be big enough to enable rational production, but not so big that it becomes too difficult to maintain a high level of customer focus and good cooperation between management and employees. The geographical locations of the production units are decided on the basis of different considerations, including efficient

and prompt customer service, security of supplies, marketing, production costs, local social conditions, and the availability of qualified labor. Moreover, before investing in any additional production capacity, Beta makes sure that the existing production capacity is fully utilized by taking the reliability and flexibility of supplies, as well as stock levels, into consideration. The production of Beta primarily takes place within the group. This means that the company produces products and components containing technologies that are strategically important, and at the same time, outsources or offshores the production of other products and components to competitive suppliers and/or acquired companies in order to ensure prompt delivery.

While offshoring to China, Beta has discovered three fundamental challenges: 1) the need to speed up product development because the original three to four years lead time from business case to market launch was too long in the local market; 2) finding and retaining the right people to learn and understand the local needs; and 3) lack of international insight of local recruits. To address these three challenges, skilled local recruits were hired and deployed abroad for some period in order to acquire standardized skills and to deploy them on return. Service support employees were also recruited and located close to regional sales offices to provide customers with required services. Furthermore, facilities or laboratories to encourage product testing and quality were built. This further signaled a change on the mindset of Beta from making almost everything in house to relying more on partnerships through joint ventures and acquisitions. In this way, it was also possible for Beta to produce more new products and extend its sale channels.

4.5.4 Analysis of Case 2: Beta – from global towards local operations

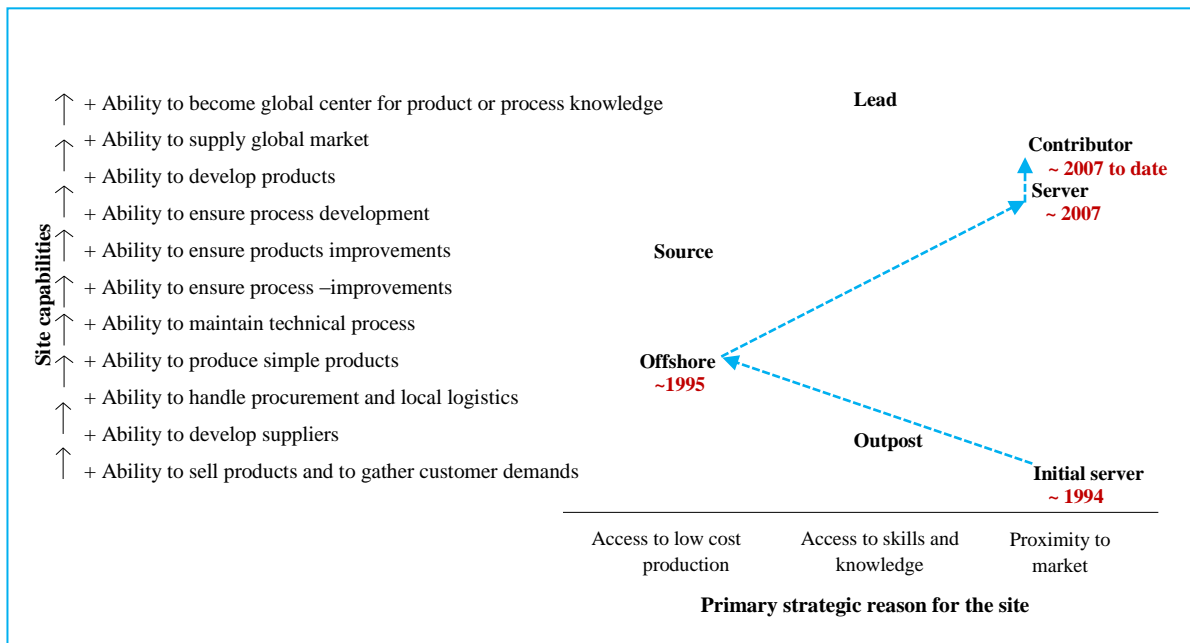
Not so many international companies were in China in the 1990s. As such, Beta started its expansion in China in the 1990s due to the attractiveness of the local market and to promote its globalization strategy. It started as an initial server in 1994 selling the HQ products to the Chinese market and gathering local customer demands. In 1995, Beta established an offshore plant in China in order to fight the liability due to foreignness, that is, over-engineering of global products and to fulfill local demands. Today, the Chinese subsidiaries are mainly serving the Asian and Chinese markets and China is tagged as the second home market of Beta which means that Beta needs to have intimate knowledge of products requirements, customers, suppliers, production possibilities and other opportunities related to the Chinese market. A general manager

with Asian background was deployed to China in order to provide managerial capability due to the experience and skills acquired from Beta's international operations. The choice of that general manager was to be able to overcome the challenges associated with Asian markets, managerial experience and local network access. Suppliers with the experience of working with western companies were used to alleviate the problem of finding capable suppliers in China. Beta improved the handling of its procurement and local logistics by learning locally and by learning from its sister subsidiaries. In the early stages, Beta lack production capabilities and had to rely on the support of headquarters/the parent company. That provided a source of initial technology transfer and the mobility of expert employees to train the production employees at the subsidiaries, which advanced the skills of the local employees and enabled the subsidiaries to produce simple products. More of such training and joint problem solving initiatives coupled with the experts' education and professional background and experience provided an additional opportunity of advancing the technical skills of the employees, so that the latter could operate and maintain the technical processes themselves.

In 2010, Beta registered a holding company in Beijing, China with 30 million U.S. dollars (about DKK 165 million = 22.15 million Euro) to facilitate the incorporation of the Beta subsidiaries in China, to develop a more sophisticated approach against business risks and be a source of finance for Beta's operations. A finance manager with strong financial skills was recruited in order to enhance smooth financial dealings of Beta's operations and to handle transactions that involve multiple currencies. Likewise, the finance manager set targets to ensure the achievement of key performance indicators such as cost-to-produce, capacity costs and total costs of materials and direct wages.

In 2007, Beta assumed the role of a server (due to its progression and capability development from an offshore role). That transition was enabled by contextual (i.e. access to market related) enablers that is, product, process and knowledge transfer were facilitated by subsidiary strategy to access local market. As such a R&D center was established to support global product development, to ramp up production and to speed up the development of local products. The lack of R&D skills by the R&D manager who set up the department led to the long duration of building the capabilities suitable to develop products. However, that was solved due to knowledge transfer and effective communication between the HQ's R&D function and its Chinese R&D team.

Meanwhile, the Danish HQ remained as a lead facility in Beta, developing and producing many highly complex and high-tech products. Today, Beta's operations are organized in an international network of communicating and collaborating functional units. [Table 4.4](#) presents the key information about the evolution of Beta, HQ and its networks while [Figure 4.5](#) presents the drivers of Beta's development. Beta's operations network is made up of three regions, i.e. Asia, America and Europe so as to deal with its main markets. The building of server capabilities and beyond in Beta, is illustrated by the paths to higher strategic role changes as depicted in [Figure 4.4](#). It is an expansive stepwise process though slightly different from Ferdows (1997b) framework. From 2007 till date, Beta has the capabilities to supply global product market and to take more responsibilities. Hence, having capabilities that are needed to perform beyond a



server role (i.e. server capabilities and beyond).

Figure 4.4: Trajectory of server capabilities evolution at Beta (template based on Ferdows, 1997b).

4.6 Performance

Beta delivers 100% quality to create customer satisfaction by validating all answers to customers with audits, creating a learning loop to secure zero-defects and by ensuring that operators prevents errors. Similarly, good quality is achieved by training employees in using practical problem solving and by partnering with continuous improved suppliers. The delivery of Beta is better compared to when operations started in China due to flexible and stable production, stable lead times and partnership with suppliers to

ensure flow of production lines in order to meet customers' satisfaction. Cost minimization is enhanced by reducing scraps and waste; inventory is optimized by creating flow, and reduced batch sizes and lead times. That has the advantage of challenging costs on all levels while increasing productivity levels. The relentless culture of continuous improvements among employees is beneficial in increasing value to Beta's business and customers.

4.7 Chapter summary

This chapter provided a practical background to the discussions in chapter five. Two Danish subsidiaries were presented in turn by following a similar structure, i.e. background, international operations, initial mandate gain and evolution in China, from global towards local operations and how the trajectory of server capability evolves.

This chapter presented the key characteristics of the eight subsidiaries (two main cases and six mini cases) on server capability development and identified the ways in which they consequently develop the subsidiary. Each case study began with a general introduction to the background. Then, the ways in which the two main case companies developed (part of) their international operations networks were studied by using retrospective cases, which was selected because the time taken (and the barriers that must be overcome) to build capabilities at the subsidiaries may be of critical strategic importance and historical coincidence often determines where a company initiates its activities. The evolutionary paths of the subsidiaries, as well as changes inside subsidiaries, were tracked from the 1990s to today. Other operations network – related information was mentioned as well. Moreover, this chapter analyzed only the two main subsidiaries and their development. Information from the preliminary analysis of the six mini cases is used in the discussion section in the next chapter. In order to bridge gaps identified from the literature review and answer the research questions presented at the end of Chapter 2, these subsidiaries were discussed from different aspects. [Figures 4.2](#) and [4.4](#) were drawn to illustrate the trajectory of server capabilities evolution while [Figures 4.3](#) and [4.5](#) represent the drivers of the subsidiary developments.

Table 4.4: Key information about the evolution of Beta, HQ and its networks.

Year	Sites	Size	Product		Operations		Market served	Strategic role	Network configuration	Degree of coordination
			Variety	Volume	Scope	Complexity				
~ 1990s	Danish HQ	Big	All components/products	High	Full operations	High	European	Lead	HQ exporting	N/A
1990s	Danish HQ	Big	All components/products	High	Full operations	High	Global	Lead	Production strategy; market focus strategy; globally integrated	High
	Hungarian subsidiary	Small	Simple products	Low	Assembly; basic processes	Low	European	Offshore		
	Chinese subsidiary	Small	Simple products	Low	Assembly; basic processes	Low	Chinese	Offshore		
2008	Danish HQ	Big	High-tech products; most products for Western Europe and US	High	R&D; full operation	High	Global	Lead	Production strategy; market focus strategy; globalized	High
	Hungarian subsidiary	Big	Simple products for EU and Russia	High	Part of R&D; full operation	High	European; Russian	Lead (partly); contributor		
	Chinese subsidiary	Big	Simple products for Asian markets	High	Localized R&D; early stage operations	High	Asian	Contributor; server		
2011	Danish HQ	Big	High-tech products; most products for Western Europe and US	High	R&D; full operations	High	Global	Lead	Production strategy; market focus strategy; globalized	High
	Hungarian subsidiary	Big	Simple products for EU and Russia	High	Part of R&D; full operations	High	European; Russian	Lead (partly); contributor		
	Chinese subsidiary	Big	Simple products for Asian markets/components	High	Localized R&D; full local operations	High	Asian; global	Lead (partly) contributor; server		

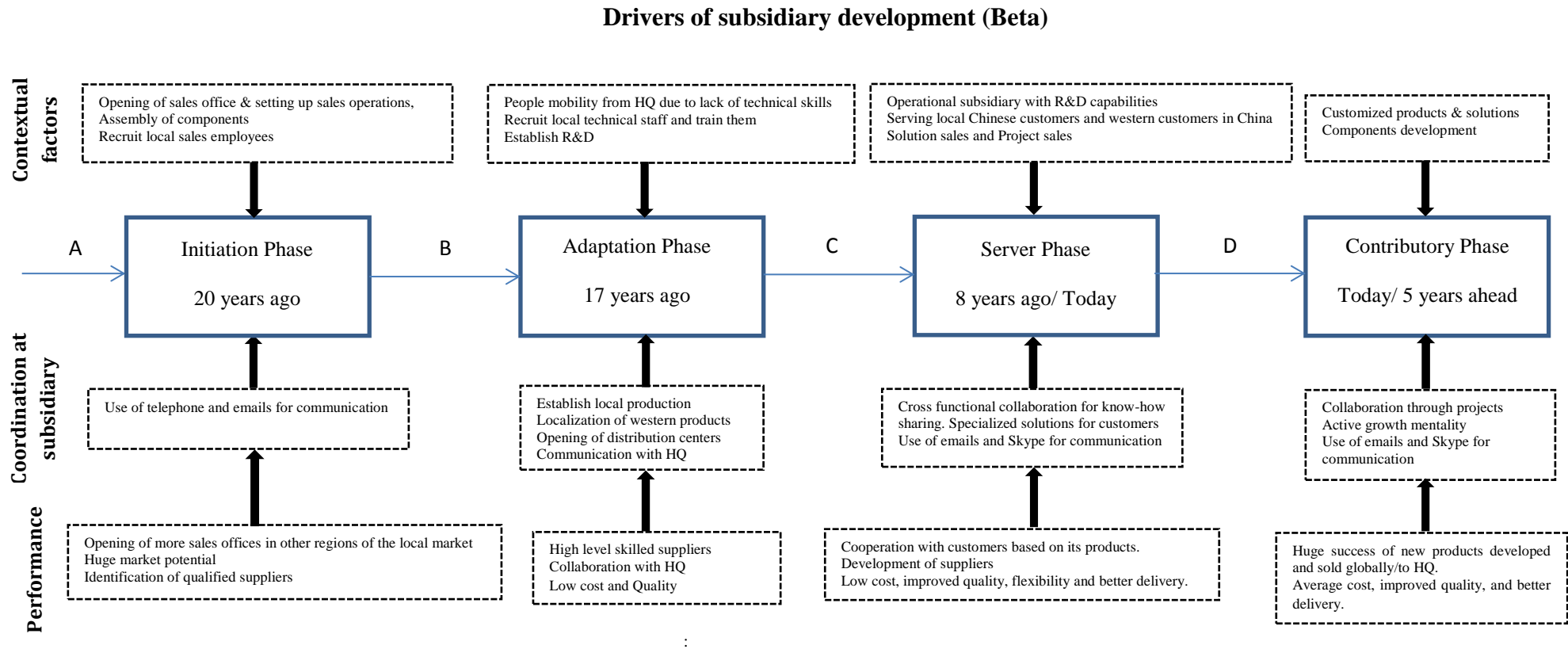


Figure 4.5: Drivers of Beta's development.

Drivers

- A - Corporate strategy; Managerial skill; Reconfigure operations; Cost seeking or cost related reasons (e.g. low tax rates).
- B - Local environment; Sourcing /supplier development; Market maturity; Resource availability (e.g. Local sourcing competency; availability of IT infrastructure; Cash-flow).
- C - Access to market; Subsidiary choice (e.g. increased autonomy); Quality compliance; Sales & marketing; financial control; willingness to explore and exploit new business opportunity; Brand image; Specialized solution.
- D - Subsidiary initiative; Innovation/know-how; Extend scope of business activities; Access to technology or intellectual capital bid and win new corporate investment; Availability of NPD capabilities; Global key account management

Chapter 5 Cross - case analysis and discussion

5.1 Introduction

The aim of this chapter is to compare individual case patterns across the cases of server capability development. The purpose of the cross-case analysis (Miles and Huberman, 1994) is to come up with robust patterns of capability development and associated mandate development paths based on the detailed case descriptions and within-case analysis in the previous chapter. The main challenge is thereby not only to come up with case similarities and differences but also to shed light on the reasons why some incidents replicate each other while others unfold in a specific and different form. As such, Eisenhardt's (1989b: 540) suggestion "to select categories and dimensions, and then to search for within-group similarities together with intergroup differences" was followed.

In the discussion section the findings from the cross-case analysis are compared to confirming as well as conflicting literature in order to develop theories for server capabilities development. As suggested by Voss et al. (2002), this involves regular iteration between similar and conflicting literature that is expected to strengthen the quality and validity of findings from the case studies.

The cross-case analysis and subsequent discussions will be split into the trajectories of server capability evolution, transformation of strategic roles and capabilities, and subsidiary establishment and mandate evolution. In addition this chapter includes a conference paper (Adeyemi et al., 2012) and a book chapter (Adeyemi et al., 2014) to provide a comprehensive perspective on server capability development. Thus, this chapter aims to provide answers to the research questions refined at the end of Chapter 2 based on the literature review. Finally, some propositions on server capabilities development are presented.

5.2 Trajectories of server capabilities evolution

The case studies reveal that some of the Chinese subsidiaries including Alpha and Beta have evolved following Ferdows model from offshore to contributor via initial/server. All of the subsidiaries were actually established or acquired as part of the growth

strategies of the MNCs they belong to. Four phases can be distinguished by the changes, which in turn, drive and enable subsidiaries to evolve in specific directions, as analyzed in the previous chapter. As the next analysis shows, Alpha and Beta started differently but ended both as Contributor plants.

Phases	Alpha	Beta
Initial	N/A	In 1994, Beta started selling its products in China.
Server		<p>Experience from the initial server phase (e.g. with over-engineered products) enabled the local sales employees to communicate the needs for product adaptation with the global sales staff at HQ, which, in turn, enabled global sales to communicate new product ideas and inputs from the Chinese market with the global R&D team. Global R&D worked together with the global production team to design products based on these ideas and market requirements, and decided where these products could best be produced in the network of subsidiaries. If the product was to be produced locally, in China for example, the changes in the product design and functionality were communicated to local R&D teams. Subsequently, the R&D teams collaborated with the local production team to produce simple and cheap products with local variants or adaptations.</p> <p>The production knowledge/capabilities</p>

accumulated from this step were mainly related to basic daily operations as, without production capabilities, production activities could not be efficient, and quality could not be ensured. The subsidiary had to be given more autonomy to evolve from the initial server mandate to higher level, i.e. offshore, mandate. Internal (strategy) drivers enabled this transition. That is, product, process and knowledge transfer were facilitated by HQ strategy to promote its globalization.

Offshore	<p>As noted above, the transition from initial server to offshore plant started in 2008 and can be regarded as completed in 2010. In order to fulfill that mandate, production activities were transferred from HQ to China. Developing production capabilities was supported through people mobility - experts from HQ were deployed to China to train the local recruits to acquire production and technical skills. The new production personnel were evaluated by assessing the progress they made.</p>	<p>In 1995, the parent company established a production facility in China as part of its global production capacity in order to take advantage of low cost production and Beta's transition to offshore status started to take shape. That is, product, process and knowledge transfer were facilitated by HQ strategy to promote its globalization and to take advantage of low-cost production.</p>
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In 2010, Alpha started the next phase of its development, to

become a server and deliver to the Chinese market. They devised a lot of concepts such as for example direct touch, value selling, distributors and OEM sales in order to gain new customers, while fostering relationships with existing customers. At the same time, though, Alpha was still serving its global customers through its parent company's sales outlets. HQ's globalization strategy was the main driver of this transition.

Server Both subsidiaries kept on accumulating knowledge of and capabilities regarding production-related tasks, such as production scheduling and planning, production maintenance, product/process improvement, and supply chain capabilities such as for example, supplier development, procurement and logistics. In addition, marketing & sales capabilities were accumulated in order to better serve the Chinese market. In 2012 and 2007, respectively, Alpha and Beta completed their transition to the server phase. This transition was enabled by contextual (i.e. access to market related) enablers that is, product, process and knowledge transfer were facilitated by subsidiary strategy to access local market.

Contributor Both Alpha and Beta have produced new products by using new processes from 2012 and 2007, respectively, until today. Existing processes were improved and new processes were developed based on accumulated knowledge and capabilities or through transfer from HQ. To increase the rate of NPD and support ramp-up production, R&D/technology centers were established to ensure the physical proximity and close integration between production and R&D. In the two subsidiaries, capabilities related to new product/process development were developed by stationing experts at the subsidiary to develop local technology skills through involvement

in daily activities and by expert mobility from HQ to train local employees in the subsidiaries. Internal (local knowledge) enablers and contextual (e.g. access to the market) enablers enabled this transition. That is, product, process and knowledge development was facilitated by subsidiary strategy to access and to serve local market demands.

The subsidiaries' combined evolution trajectories are illustrated in [Figure 5.1](#), together with the capabilities accumulated, absorbed and developed corresponding to each phase during the evolution.

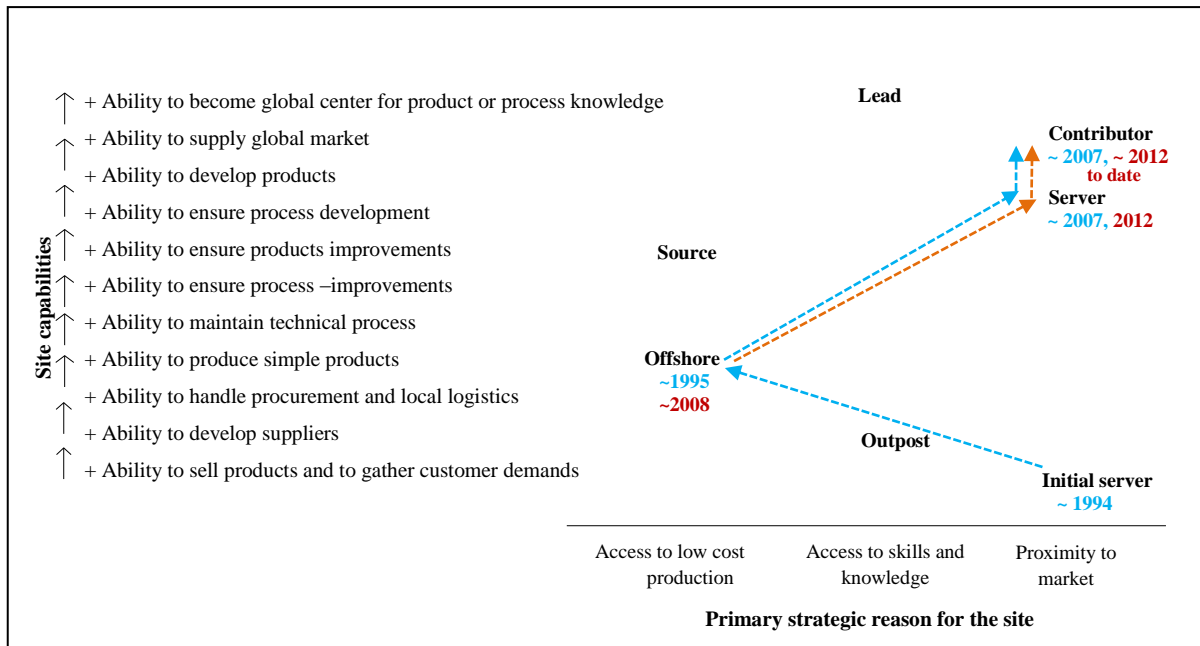
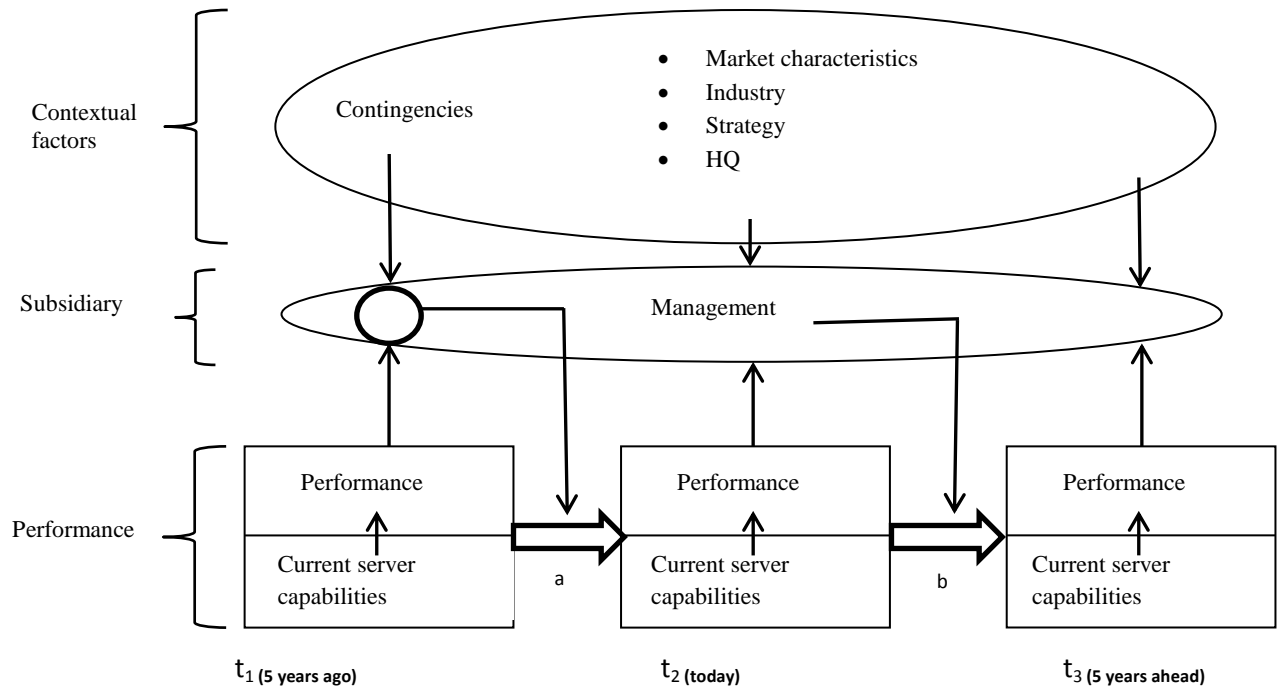


Figure 5.1: Combined trajectory of server capabilities evolution (template based on Ferdows, 1997b).

5.3 Research propositions

The progression of the trajectory from an initial server plant or an offshore plant to a server plant is termed a server trajectory in this thesis, which is the path that also indicates the development of server capabilities. The server trajectories of Alpha and Beta are affected by the initial mandate gain. Various propositions can be inferred from that individual and cross-case analyses and expressed relative to the research model depicted in [Figure 5.2](#) (from Figure 2.6).



a & b – Capability development

Figure 5.2: Theoretical framework (from Figure 2.6).

Proposition 1: *The initial mandate gain affects the trajectory of building server capabilities and beyond of subsidiaries.*

However, the argument of Feldman and Olhager (2013) is confirmed in the server and contributor phase, namely that some plants have only production related competences while some have both production and supply chain related competences and others even production, supply chain and development related competences. Up to the contributor phase, Alpha and Beta have production, supply chain and development related capabilities. Marketing and sales related capabilities are found to be relevant in order to act as an initial server in a local market which involves having the ability to sell products and to gather customer demands. In contrast, the development of the capabilities is not cumulative as suggested by Ferdows. Alpha started as an offshore plant, subsequently added local sales and market understanding to become a server plant and finally a contributor plant. That is, the development of production related capabilities was followed by that of marketing and sales capabilities before supply chain and development capabilities were gradually added. In Beta the initial server phase preceded the development of offshore, server and finally contributor capabilities. As such, marketing and sales related capabilities were the first to be developed, followed by production, supply chain and development related capabilities. Therefore,

irrespective of the trajectories:

Proposition 2a: *Marketing & sales, production, supply chain and development related abilities are essential for building server capabilities and beyond.*

Proposition 2b: *The sequence in which these capabilities are developed determines the sequence of the subsidiary role changes.*

5.4 Transformation of strategic roles and capabilities

The relationships between the strategic role and capabilities of subsidiaries are revealed in [Figure 5.1](#). The gradual transformation of the subsidiaries' strategic role includes an improvement of existing capabilities and the development of new ones. Beta accessed low cost labor and acted as an offshore plant, which provided home based factories with efficient operations and economies of scale in producing simple, standard and mature products. For Beta, which started as an initial server, information on local product requirements and the irrelevance of their over-engineered products in local markets led to the establishment of offshore production facilities and the need to develop adequate production capabilities. This is similar to the case of Alpha, which actually started as an offshore facility. As the subsidiary acted as an offshore plant, they probed and exploited the local market for other opportunities. The potential of the local market led to the initiative of market-related/customized products, which are normally produced close to the markets, for two reasons. First, it is expensive to transport products to remote markets. Second, subsidiaries with proximity to markets can comprehend local demands more completely and accurately. Therefore, such subsidiaries evolve to a server stage. Both Alpha and Beta depended on their parent company for innovative products, advanced processes and complicated knowledge since they had limited, if any, capabilities to develop their own products. Hence, the recruitment of local employees with technical skills and the deployment of experts from the parent company to train local employees.

Progress to the server stage, created the need to handle procurement, local logistics and develop their suppliers for both Alpha and Beta. So, experts from the parent company were transferred to and stationed at the local subsidiaries to develop procurement and logistics, and the local suppliers. The interaction between the local employees and the suppliers was intensive and aimed at handling local procurement and logistics effectively and getting suppliers involved from the design stage of products. For

example, in 2012 Alpha combined the logistics and customer service functions to form a supply chain function, which is a benefit to the subsidiary due to integrated responsibilities of local employee after acquiring on-the-job training in skills such as handling integrated shipments and achieving associated cost reductions by combining batches during container loading. Finally, new and higher-tech products could only be produced by the parent company, as none of the subsidiaries had the required capabilities to produce such complex products'. In other words, both the subsidiaries and their HQs play specific strategic roles as each of them produce specific but different products in terms of, for example, complexity with corresponding capabilities and processes.

The roles of subsidiaries can thereby be described as correctly identifying the right products to be produced, using the right processes according to local and HQ's business needs and dynamic competitive environments. In addition, the cases show that a subsidiary's location also plays an important role in subsidiary evolution, since specific changes in local conditions (e.g. infrastructure, business environment, and local policy) can actually lead to a change of the strategic role of a subsidiary. Examples can be identified in both cases. Alpha evolved from an offshore plant while Beta evolved from an initial server subsidiary. Both became a server plant and finally developed to a contributor plant partly because, in China, the business environment improved, the infrastructure matured, and educated workers became available (Cheng, 2011). It can thus be argued that the transformation of knowledge/capabilities within a subsidiary is a stepwise expansive process (cf. Wæhrens et al., 2012). Hence:

Proposition 3a: *Improved business environment, matured infrastructure and educated workers are important for developing a server plant and consequently its server capabilities and beyond.*

Proposition 3b: *The building of server capability and beyond is a stepwise expansive process.*

5.5 Subsidiary establishment and mandate evolution

As stated earlier in Chapter three, the interviews in the pilot study was conducted in twelve subsidiaries in the equipment/machinery industry and were not all transcribed, but were all preliminarily used in the data analysis (in this chapter). Initial conditions have been argued in the literature as a key construct explaining a firm's development

(e.g. Smith et al., 2005). As the starting point of a capability development case, four initial conditions were considered – initial strategic intent, initial technology, initial management, and initial financing. Furthermore, the way in which subtle differentiation among these initial conditions creates fundamental impacts on capability development across firms is identified from the data. In addition to initial conditions, it appeared there were initial networks taking effect to facilitate the initial mandate gain. However, the capabilities that were internalized in-house seemed to play a more dominant role in setting up new subsidiary to operational level, as the following analysis will show.

Initial strategic intent

Theoretical considerations play an important role in case selection. Based on the theory review, three trends can be identified, namely:

- Serving Asia
- Serving China
- Client - follower

The cases studied for the purpose of this thesis were selected to represent these trends. The first type of company (Beta and Gamma – see [Table 4.1](#) and [Table 5.2](#)) describes itself as “serving Asia” - not only China and is more autonomous compared to the others in terms of the main focus of its operations. The second type (Alpha, Delta, Epsilon and Omega) tags itself as “serving China,” – keeping its core competences while outsourcing a large part of its production processes and it is autonomous in its operations. The third type (Zeta and Eta) is set up to follow one of the parent company’s major customers to China, established as a green field operation, which is highly dependent on HQ operations and capabilities.

Initial technology

Subsidiaries with a production function utilize certain technologies and aim to develop new technologies as their operations advances, though the sources of the initial technologies and the abilities to utilize such technologies vary. In essence, that could be a unique differential factor to the path of a subsidiary’s development. Out of the eight cases, six cases (Alpha, Beta, Delta, Zeta, Eta and Omega) leverage on the technology from their parent company and two on a partner company’s technology (see [Table 5.1](#)). Some of these initial technologies were principal in developing the subsidiary’s local operations; some were in the preliminary stage and not directly functional so they were subject to adaptation. There are technologies the parent company had invested in and

which needed to be utilized instead of setting up or investing in new ones in the subsidiaries. Hence, the subsidiaries benefitting from the transfer of such vital technology were more likely to develop technical capabilities faster as they had the technology transferred from the parent company without much delay. In these cases, technology experts from headquarters were deployed to train the local technical recruits. The local technical recruits were equally fast to absorb, assimilate and acquire new technical skills. In addition, these subsidiaries adopted a learning-by-doing approach in the sense that the technology experts from headquarters gave freedom to the local technical recruits to perform a given task. This provided the opportunity to learn from their successes and failures coupled with interactions with the experts. Training and learning-by-doing approaches enhanced the technical capabilities of the local employees quickly compared with subsidiaries who had to partner with universities or other educational institutions, or who started the development of their own technology without any dependence on the parent company and its experts. Implementing a technology from scratch and developing the understanding and skills needed to operate that technology took longer time for the employees. Hence, without initial reliance on the parent company's technology, these subsidiaries would typically begin operations with less-advanced technology and in effect they, needed to spend more time on developing the technology (i.e. refinement and finishing after invention or preliminary technology) to a usable level and training the local technical employees on how to absorb and get to work effectively with the technology.

Table 5.1: Strategic intent and initial technology.

Subsidiaries	Strategic intent	Initial technology
Alpha	Serving China	Parent company
Beta	Serving Asia	Parent company
Gamma	Serving Asia	Partner company
Delta	Serving China	Parent company
Epsilon	Serving China	Partner company
Zeta	Client-follower	Parent company
Eta	Client-follower	Parent company
Omega	Serving China	Parent company

For example, Alpha and Beta were two main subsidiaries that obtained technology transfer from the parent company but the match between the technologies and the

capabilities of these subsidiaries differed. All case companies made tremendous efforts to get through the financial crisis, management turnover, and strategic re-orientation; hence they spent longer time re-orienting their goals and developing the technical capabilities of their employees. However, most of the cases inherited valuable technologies, expert teams, and even some of the well-evaluated and sophisticated development programs. These legacies played a significant role in Alpha and Beta. In contrast to the other six cases, Gamma and Epsilon obtained key technology for their local operations not from the parent company but from a partner company, but not the expert support and training/learning-by-doing, so that it took longer-than-average time to reach operational level and to have its employees utilize such technology effectively.

The developments of the six subsidiaries (see [Table 5.3](#)) that leveraged on their parent companies' technology were similar and smooth since they all set up operations with existing "key technologies transferred." Similarly, they benefited from readily available experts to train the local employees' relatively fast and did not need more than two years to develop their technical capability and reach operational level. Gamma and Epsilon acquired their key technology from a different source and did not receive the same level of support.

Proposition 4a: *Subsidiaries with key technology transferred from the parent company are more likely to achieve fast server capability development and beyond than subsidiaries without such key technology transferred.*

Proposition 4b: *Subsidiaries that receive expert support from HQ in the form of training, guided learning-by-doing and/or other forms of employee development, are more likely to achieve fast server capability development and beyond than subsidiaries that do not receive such support.*

Initial management-style, experience and industry alignment

Organizing a management team at the evolutionary stages of a subsidiary is important in order to deal with legal, financial and, of course, managerial issues. The management style expressed in a management team affects the managerial capabilities of the subsidiaries, which, in turn, have important influence on organizational performance (Penrose, 2009; Kor and Mahoney, 2004). Managerial capabilities are defined as the capabilities to identify opportunities, and obtain resources either external or internal to the firm, and to combine and allocate these resources to realize identified opportunities. Managerial capabilities are developed by integrating the knowledge of the individual

managers within the team (Kor and Mahoney, 2000; Bosch and Wijk, 2001). The case studies reveal that hiring professional managers with experience in the subsidiary's focal or a similar industry ([Table 5.2](#)) and the cultural understanding needed to perform successfully both globally and in the Chinese context, influenced capability development in an active way and helped them achieve better operational and financial performance. In fact, all the subsidiaries were run by experienced and professionally trained managers from the beginning, but in some cases these managers lacked the required cultural understanding or had experience based in a different industry.

Table 5.2: Initial management in case subsidiaries.

Initial management				
	Top management team composition	Managerial experience	Industry aligned or not	Asian background or not
Alpha	General Manager with marketing background; has multi-year successful industrial experience with broad network (guanxi) and recognition	Professional, experienced	Aligned	Yes
Beta	General Manager has many years of outstanding industrial experience and recognition	Professional, experienced	Aligned	Yes
Gamma	A regional manager with many years of experience was hired	Professional, experienced	Aligned	No
Delta	Managing Director has professional experience	Professional, experienced	Aligned	Yes
Epsilon	Managing Director has many years of productive industrial experience	Professional, experienced	Aligned	No
Zeta	General Manager with many years of experience	Professional, experienced	Aligned	Yes
Eta	General Manager has many years of productive industrial experience	Professional, experienced	Aligned	No
Omega	General Manager has many years of excellent industrial experience	Professional, experienced	Aligned	No

At Alpha, for example, it took some time and new appointments before this subsidiary found a professionally trained general manager with the necessary industrial experience and cultural understanding; all its previous GMs had professional experience from other industries or they lacked the cultural understanding needed to prosper in the Chinese context. They hired general managers (from Denmark and Singapore) who both quit in less than a year and only then they promoted a Chinese deputy general manager to a general manager and hired other local managers who were already immersed in the industry for many years. According to Alpha's global factory support director (GFS): *"Many of the employees have previous work experience with foreign companies. So, we leverage on their skill especially the management team because they have worked before with*

companies that have some roots in western culture. So, it is easier for them to run operations in Alpha since they are aware of how western companies are acting”.

Beta deployed an experienced manager to be a general manager at the subsidiary, who had the Asian background needed to relate effectively to the local business environment. So, a professional background, relevant managerial and industrial experience and an Asian background favored both Alpha and Beta. Gamma was run by a regional manager who had been in a similar industry. Although he did not have an Asian background, he had been working and living in Asia for many years. Delta hired an experienced Asian professional to manage the subsidiary from the beginning and also Zeta was run by managers with the right professional, experiential and cultural background.

Epsilon’s managing director was one of three exceptions. He had gained professional experience from HQ before he was transferred to the subsidiary, which benefited the subsidiary in the early stages. Not only was he able to direct the subsidiary in making correct decisions long before exploiting local opportunities, he also managed to encourage cross-functional collaboration among his local employees, which facilitated fast capability development and all that in spite of his lack of experience with the Chinese business and cultural context. Also, Eta and Omega had managers with long years of excellent experienced professional management, but both are Danes. So they could influence the local employees on how western companies act and draw from their “know-how” and “know-why” to assist local employees.

Proposition 5a: *Subsidiaries led by more professional managers who have relevant industrial experiences are more likely to achieve fast server capability development and beyond.*

Proposition 5b: *Subsidiaries led by managers who have a relevant (i.e. Chinese or Asian) cultural and business background are more likely to achieve fast server capability development and beyond.*

Initial financing

Besides initial strategic intent, technology and management, financing lays a foundation for advancing the initial technology and capability development. The data show that subsidiaries with specialized investors differed from the subsidiaries without specialized investors at the early stages. Furthermore, the data show that firms starting with

specialized, steady sources of investment enjoyed a more smooth and fast-paced server capability development. Those with specialized investors also have a better financial expert who is able to handle sophisticated financial transactions, whereas those without specialized investors firms only started to involve specialized investors at a much later stage of subsidiary development or used their own investment with support from their parent company. Specialized investors here could be likened to be professional venture capital or holdings companies specialized in production activities. These investors had the intent and capacity to provide steady amounts of funds for operations and could provide specialized managerial advice through their board.

Alpha relied upon the parent company for funds until the subsidiary was financed by a venture capital with experience in industrial components technology. There was a dual advantage in providing funds for operations and equally providing managerial advice for the running of the subsidiary operations. Beta started operations with its own investments and later through its holding company. Alpha, Beta and Eta had expert financial managers with acumen and skills to follow up on the accounting standards and tax laws in the local market, which was (and is) always prone to changes. As such, the financial manager's ability to handle financial transactions properly enhanced the building of server capability. Eta relied on its own investment and additional venture capital involvement. The other five subsidiaries depended on their own investment during the initial stages of setting up operations in the local market. Intrinsically, Alpha, Beta and Eta had a better approach against business risk, which helped in developing server capabilities faster compared to the other five cases.

Initial key technology transferred (KTT) and management condition could be the two most important reasons why Alpha, Beta and Eta were able to raise fund from specialized investors. Similarly, subsidiaries with KTT from parent company seemed to have more credibility in attracting specialized investors before they had to seek the same resource from industrial partners. The initial technology, management styles and operations induced recognition from investors. Thus:

Proposition 6a: *Subsidiaries with initial financing from specialized investors are more likely to achieve fast server capability development and beyond.*

Proposition 6b: *Subsidiaries with the ability to handle sophisticated financial transactions (financial capabilities) are more likely to achieve fast server capability development and beyond.*

Table 5.3: Contextual factors affecting server capability development.

Subsidiary	Initial conditions				Hiring	Strategy change	Partnership & collaboration		
	Source of initial technology	Initial management	First financing	Initial suppliers			Interactive relationship	Core knowledge generation	Development orientation
Alpha	Parent company	Experienced professional management	Venture capital (with expertise in industrial component technology)	With western influence	L	Yes	Yes	Yes	External & Internal
Beta	Parent company	Experienced professional management	Holding company and own investment	With western influence	S/L	Yes	Yes	Yes	External & Internal
Gamma	Partner company	Experienced professional management	Own investment	With western influence	S	Yes	Yes	Yes	External & Internal
Delta	Parent company	Experienced professional management	Own investment	Without western influence	S/L	Yes	Yes	-	External & Internal
Epsilon	Partner Company	Experienced professional management	Own investment	Without western influence	S	Yes	Yes	-	External & Internal
Zeta	Parent company	Experienced professional management	Own investment	-	-	Yes	-	-	External & Internal
Eta	Parent company	Experienced professional management	Venture capital and own investment	With western influence	S	Yes	Yes	-	External & Internal
Omega	Parent company	Experienced professional management	Own investment	Without western influence	S/L	Yes	Yes	-	External & Internal

5.6 Challenges in subsidiary development and coping strategies

Challenges related to subsidiary development and strategies to cope with these challenges have been dealt with in the following conference paper (see Appendix C for the full text): Adeyemi, O., Slepnirov, D., Wæhrens, B.V., Boer, H. (2012). Building server capabilities in China, *Proceedings of the 4th Joint World Conference on Production and Operations Management/19th International EurOMA Conference on Serving the World*, Amsterdam, The Netherlands, 1-5 July.

The paper addressed the question: *how do foreign firms build the capability to adapt their operations in China so as to get beyond low cost, serving home base requirements to serving local market conditions?* Based on the two main case subsidiaries (Alpha and Beta), the findings highlight a number of common patterns in the managerial challenges related to the development of server capabilities at offshore sites, and ways in which these challenges were handled.

Many western multinationals have defined China as their second home market. That poses a range of new demands which, considering numerous examples of failures, are not always easy to meet. A subsidiary acting as an offshore (Ferdows, 1997b) is established to produce specific, usually low-cost, items, which are then exported either for further work or sale. Investments in technical and managerial resources are kept at a minimum. Little development or engineering occurs at the site and local managers rarely choose key suppliers or negotiate prices. A subsidiary with a server role (Ferdows, 1997b) supplies specific national or regional markets. It typically provides a way to overcome tariff barriers and reduce taxes, logistics costs, or exposure to exchange rate fluctuations. It is considered to have more autonomy than an offshore factory to make minor modifications in products and production methods to fit local conditions, although its authority and competence in this area are limited. Similarly, Vereecke and van Dierdonck (2002) explained that offshore sites with market and skills/know-how proximity as the primary drivers play a higher strategic role than offshore sites with low labor cost as the primary driver. Intrinsically, the pressure to reduce time-to-market, increase customer service, or adapt products to local tastes/cooperation with customers, for example, may stimulate local management to develop the local competence base and increase its server capabilities by shifting focus from low labor cost to market building capabilities.

In light of that, most existing literature has focused on the characteristics of the entering firm, in particular its resources and capabilities (Barney, 1991; Anand and Delios, 2002) and its need to minimize transaction costs (Buckley and Casson, 1976; Anderson and Gatignon, 1986; Hill et al., 1990). Although resources and capabilities are certainly important (Peng, 2001), recent work has hardly considered the market orientation of offshored sites. Especially, the transformation from a low-cost based offshore subsidiary to a more market-oriented server subsidiary. Hence, there is a need to understand how firms absorb strategies and processes from developed countries and adapt them to the requirements of emerging, local markets. Based on the two main cases, some similarities were detected which are proposed as a set of principles, processes and solutions that can guide a manufacturer in overcoming the challenges related to, and successfully manage the transition process from an offshore subsidiary to a server subsidiary in China. The analysis of the firms involved in this study reveals that they were configured on an international basis and consisted of decentralized and nationally self-sufficient subsidiaries, which related actively in an exchange of skills, services and information. Although the journey towards self-sufficiency is yet to be fully realized by the firms involved, such a multinational mode of organizing operations seems to depend on various factors. First, the foreign direct investment (FDI) perspective of establishing international operations. Second, the benefits of offshoring, such as, low cost manufacturing (low cost energy, raw materials and labor), access to new knowledge and access to local markets, stimulate manufacturers in China to use overseas resources both internally and externally, for standardized tasks and to gradually upgrade themselves to become a server factory. Third, a fast-growing market reinforces the drive towards market-oriented production. [Table 5.4](#) shows that server capabilities could be used to resolve the challenges faced by subsidiaries operating in emerging countries such as for example, China.

Establishing an R&D function alongside the production in China and the presence of a rich supply of skilled engineers in China (Sun et al., 2007) provide the possibility to co-develop products to serve the Chinese market. A crucial element in adapting to market-oriented production by building server capability is the deployment of experienced R&D workers to China from headquarters so as to transfer key skills acquired by experience, avoid its dearth in case of experienced worker resigning, and advance the skills of the local recruits (Alpha and Beta). Beta facilitated learning/ acquisition of skills by opening a R&D office in China, which provided new knowledge to HQ about

the Chinese market and, acting as a center of excellence, partnered with headquarters in building strategic capabilities for emerging market operations (Vereecke and Van Dierdonck, 2002).

Table 5.4: How server capabilities are used to handle challenges faced by case subsidiaries.

Challenges of case subsidiaries	Server capabilities	How the challenges were handled	Discovered in
Lack of competent local suppliers for sourcing activities	Ability to develop suppliers Ability to source and handle local logistics	Providing technical and related consulting to suppliers and helping them to improve Deployment of experts from HQ to train local suppliers (People/Expert mobility) Leveraging on suppliers who have previous work experience with western companies	Alpha and Beta
Lack of proximity to customers	Ability to produce	Establishing local production activities	Alpha and Beta
Lack of technical know-how/highly qualified workers	Ability to maintain technical processes	Recruiting local technical recruits People/Expert mobility from HQ to subsidiaries	Alpha and Beta
Lack of sales/ service support to customers	Ability to sell products	Opening of more local sales offices Utilizing service support employees to sell products and to gather product information from customers	Alpha and Beta
Lack of product customization according to different users/local demands	Ability to develop new products and variants	Establishing R&D close to production Continuous interaction between home based plants and subsidiaries	Alpha and Beta
Lack of ability to ascertain product quality before leaving the company	Specialized skills for product testing	Investment in testing equipment Purchasing agreement with clear product status	Beta
Inappropriate outsourcing cooperation	Ability to deploy non-core activities	Partnership with right companies	Alpha

Consequently, the following propositions are presented based on the case subsidiaries²:

Proposition 7: Establishing R&D close to production enhances a subsidiary's ability to develop products to fulfill local demands.

According to Vereecke and van Dierdonck (2002), adapting products to local needs stimulates market-building capabilities. This is reflected in the recruitment of highly skilled workers with technical skills in both Alpha and Beta. Product adaptation to customer demands enhances business performance (Beta). In both cases the sourcing

² The numbering of the propositions in this section is continued from the previous section.

capabilities of their suppliers were developed by deploying experts from HQ to train local suppliers, leveraging on suppliers who had previous work experience with western companies and maintaining a close relationship with the local suppliers aimed at fostering partnerships. Hence:

Proposition 8: *Expert mobility enhances the development of a subsidiary's sourcing capabilities as well as local supplier development.*

Both Alpha and Beta recognized the importance of new products brand and variants, corresponding to minor modifications in products and production methods to fit Chinese conditions. In line with this Ferdows (1997b), stated that a server factory make minor modifications in products and production methods to fit local conditions. Alpha adopted this approach in order to diversify its business and render value to particular customers, while Beta used it as a competitive weapon to get advantage over competing companies in the same business category. Modification of products and production methods was made possible through continuous cross-functional interaction within the subsidiaries and between home-based factories and the subsidiaries, which enhanced the skills of the employees.

Proposition 9: *Continuous cross-functional interaction within a subsidiary and between HQ and the subsidiary enhances the development of the subsidiary's New Product Development (NPD) capabilities.*

Alpha and Beta recruited and employed service support employees in the main regions of the Chinese market to sell products and gather product information in order to develop their business and provide prompt technical support to customers as a result of their presence. That helped to develop the business and improved the sales performance of the subsidiaries. So, it could be argued that, in order to build server capabilities in China, it is important for product service support centers to be present in the main regions in China to attend to local customers' needs. More communication between customers, product service support and other relevant functions is encouraged as well.

Proposition 10: *Employing service support employees to sell products and gather product information in a subsidiary's main regional markets positively affects the subsidiary's business development.*

Furthermore, inter-functional coordination from a single strategic demand to a wider range of different demands aids the ability to serve the market efficiently because the

operations function is no longer isolated but embedded in the organizational network. Hence, office support employees need to be recruited to process and direct enquiries/information to appropriate functions and to act as the inter-link across functions. Overall, the paper presents propositions towards answering the questions posed by Reiner et al. (2008) regarding the major problems faced by subsidiaries in emerging countries, how to resolve them, and how subsidiaries in such countries build capabilities and attract more investment (the changing network role cf. Vereecke et al., 2006). By and large, the paper attempts to bridge the gaps identified in the existing literature by reflecting not only on the capabilities of offshore sites but also on how they build capabilities going beyond those needed for low-cost production. The case studies performed for that purpose reflect challenges for offshore subsidiaries to develop themselves to market-oriented server subsidiaries, a shift from cost orientation through the production of low-cost components that are transported for assembly back home, to a situation in which products are produced completely in China to serve the Chinese customers.

5.6.1 The effects of changes in strategic intent and external contingencies

The contextual implications of this research have been presented in a book chapter (see Appendix D for the full text): Adeyemi, O., Slepnirov, D., Wæhrens, B.V., Boer, H. and Wu, X. (2014). Exploring the changing roles of Western subsidiaries in China – balancing global priorities with local demands. In: Johansen, J., Farooq, S. and Cheng, Y. (eds.), *International Operations Networks*, Springer, London, pp. 67-80.

The research question addressed in the book chapter: *how does the shift of primary strategic motive from serving global to local demands influence the capabilities and roles of local subsidiaries?*

The role of subsidiaries in China has changed over the previous 30 years of economic development. China has become an important host country for subsidiaries of western multinational companies seeking cost advantages and/or access to the emerging market potential. The objective of the book chapter is to explore the effects of the emerging strategic mandate of subsidiaries to serve local demands while meeting global corporate standards and operations priorities. Well established dimensions such as strategic importance and operations capabilities are confirmed while embeddedness into local business networks and level of process optimization are suggested as other dimensions having contextual influence on the roles of subsidiaries and consequently their

capabilities in an emerging market. The dimensions are established through a literature review and validated by four of the case subsidiaries namely Alpha, Beta, Gamma and Delta.

Table 5.5: Critical findings/strategies and contextual implications of building server capabilities and beyond (adapted from Adeyemi et al., 2014).

Subsidiaries	Critical findings/strategies	Contextual implications
Alpha	Proximity of production and product development in China Diversification of product application Outsourcing in China Focus on local sales Cross-functional collaboration	Embeddedness into local business networks to facilitate operations Low cost & support for local market as strategic priorities High level of operational optimization Autonomous from HQ operations Operations capabilities for operational set-up
Beta	Local production in China Market segmentation Cross-functional collaboration Local sales agents Localizing through aftersales licenses and dealerships	Excess time in building operations capabilities Penetration into local business networks Development of operational process Autonomous from HQ operations Low cost & market focus as strategic importance
Gamma	Diversification into new business area Cross-functional collaboration Wide coverage of customers through partnerships Replicate key HQ functions Emphasis on subsidiary's values and norms	Proximity to market as strategic importance Contract licensees to optimize operations Budget increase in order to get into local business networks Partnership to leverage operations capabilities Partial autonomy from HQ operations
Delta	Chain stores to access specific markets Cross-functional collaboration Offshore production site Investigating local markets & sales agents	Expansion of operations Low cost as strategic priority Upgrade of operations capabilities so as to adapt products locally Not autonomous from HQ operations Embeddedness into local business networks in order to attract new customers

The four subsidiaries serve the Chinese market and [Table 5.5](#) presents a summary of important findings or strategies of the subsidiaries and their contextual implications in building server capabilities and beyond. In the early developmental stages, essential resources and capabilities essential to act as a server role were transferred to the subsidiaries through employees within their internal network, HQ, and sister subsidiaries as practiced previously by Japanese firms (Florida and Kenney, 2000; Adeyemi et al., 2014). As such, the subsidiaries could tap into headquarter resources, established global customers and suppliers relationships, knowledge or competencies to act as a leverage upon which smooth operations could be ensured. The ability to sense

and explore local opportunities enabled the subsidiaries to develop and transform from an initial mandate to a higher mandate, such as for example, from offshore to server. Hence, it became important to interact with local suppliers, more local customers, across internal functions and with HQ to gather information for the advancement of local operations and development of products towards satisfying local customer's requirements. As a result of that, subsidiaries sought autonomy to reduce the control of headquarters in their operations. A transformation from subsidiary's initial basic responsibilities and standard products supply to an independent operational entity has both benefits and challenges. Resolving the challenges related to operating in a local market and building server capabilities requires the ability to leverage headquarter competences (Bartlett and Ghoshal, 1989, 2002) as well as access to external partners' relationships. Server capabilities enable subsidiaries to fully explore, respond to local market opportunities/dynamics and cope with operational difficulties in order to satisfy global and local customers. All the subsidiaries except Gamma have production activities in China so as to be closer to the market they serve and to reduce operational complexity while adapting and developing products for the Chinese customers.

Furthermore, Gamma initiated a new business area and partnership with four orient state-of-art OEMs with a huge market share in China in order to reinforce its brand awareness and share knowledge and site resources. That partnership helped Gamma to become socially embedded within the local market by participating in social events with existing and potential business networks. To import products to China, Gamma used contract licensees before it got its importation license. Today, Gamma sells its products through key account customers and master dealers. The products and service kits have a warranty of three years. Products are sent to the Chinese facilities of all the companies involved in the partnership except one of them. Alpha and Beta promoted the development of their initial outsourcing partners through training and effective collaboration practices. More involvement of the outsourcing partners' right from the early stages of product development and introduction has helped them to develop capabilities for process integration and local responsiveness. Gamma, in contrast, relies on importing components and products, and therefore depends on the effective performance of its insourcing agents (e.g. UPS) in order to optimize its processes and reduce delivery lead time of products to customers. Alpha and Beta enjoy extensive autonomy from HQ in their operations, which enables quick decision-making in connection with the exploration and exploitation of local resources to meet local

customer demands.

Gamma has partial autonomy from HQ in its operations. Delta is still dependent on HQ in its decision-making and operations processes, although it is coping well due to its possession of some server capabilities to optimize its processes and for integration in its internal network. Alpha outsources about 80% of its operations due to lack of technical capabilities while Delta outsources a small percentage and produces more than 90% of its products due to availability of raw materials and production capabilities. Beta and Gamma use aftersales support as a way to relate to customers, access local social networks and gather information. In contrast, Delta sells its products exclusively through retailers (i.e. chain stores) in the European market but that approach is difficult to adopt in China due to differences in mindset and buying culture. Master and licensed dealers (Gamma), authorized distribution channel and local sales offices (Alpha and Beta) are used for product sales and to penetrate local business networks. Moreover, drawn from its mode of entry into a geographic market, the server role enables a subsidiary to penetrate a market by supplying a specific national or regional market based on its requirements. The four case subsidiaries leverage on relationships between HQ and its subsidiaries that led to the transfer of capabilities in the early stages based on fixed templates detailing the mode of operation. However, as the particular conditions of the subsidiary surfaced the standard practices from HQ were open for adaptation as illustrated in all the cases. The four cases demonstrate the strategic importance of the local opportunities by establishing a significant operations footprint and slowly redirecting capacity from export to serving local demands as well as by diversifying into new business areas (Gamma). This capacity redirection is required to cope with the mandate gain from offshore plant to server, which demands a mix of existing and new capabilities to support the new mandate.

Alpha, Beta, and Gamma specifically exhibit the strategic importance of proximity to the Chinese market while Deltas' relevance is still based on low-cost production. The scope of all the subsidiaries' current activities has increased compared to their initial role, low cost production (offshore role). This change in role is in line with Bartlett and Ghoshal's (1989, 2002) suggestion that strategic importance encourages local subsidiaries to adapt and leverage parent company competences, knowledge developed for foreign operations, marketing and sales culture and established local customers' relationships. The four subsidiaries' development affirms the role of strategic

importance (Bartlett and Ghoshal, 1986) as a key contextual factor that influences the development of a subsidiary and its capabilities. Diversifying or adapting product applications to local conditions demands new sets of operations capabilities different from those used for low cost production. Leveraging and upgrading of operations capabilities were evident at both Gamma and Delta, when these subsidiaries strategy changed from serving global to local demands. This argument is in line with the transfer strategy suggested by Florida and Kenney (2000) whereby resources and capabilities required to fulfill a server role are transferred from internal networks, HQs or sister subsidiaries to the server subsidiary.

The competences and experience dominant in the four subsidiaries are expressed as knowledge based resources, market relationships and managerial skills/authority, all of which affect the strategic role of a subsidiary according to the frameworks of Bartlett and Ghoshal (1986), Ferdows (1997) and Kim et al. (2011) and consequently the capabilities to match that role. The time devoted by Beta to build R&D and production capabilities reflect the necessity of adapting products and processes to local market requirements. Alpha's expansion of business focus by introducing household products in order to serve the local market also placed new demands on the operations capabilities needed to accomplish production activities in China effectively. Thus, operations capabilities are another factor that has contextual influence on the development of a subsidiary and its capabilities. Alpha and Beta could develop higher levels of management skills than the others, as a result of their concerted efforts to explore the local markets and increase their local R&D activities aimed at reducing production costs and serving the Chinese market. The development of higher levels of management skills builds on Birkinshaw and Hood (2000) who note that the influence of subsidiary management cannot be neglected in the determination of subsidiary roles. Delta has been delivering products based on acceptable quality standards, and its distribution network has improved through its embeddedness in the business network of the Chinese market. Gamma is exploiting and developing its local business networks in China using social media. Some of the subsidiaries use local sales offices, authorized distribution channels, outsourcing (Alpha) and market segmentation (Beta) to get into the local business networks. Others use diversification into a new business area (Gamma) and partnerships (Gamma and Delta) to get more involved in the local business networks in order to serve local markets.

The new business area that Gamma has developed is an attempt to develop its domain while managing its customer relationships and gathering information for innovation. Domain development is described by Delany (2000) as the pursuance of a new business opportunity in a local market. As mentioned before, involvement in local business networks finds support in Birkinshaw and Hood (2000), who stated that the local environment influences the determination of subsidiary roles. Likewise, it builds on the suggestion of Hood and Taggart (1999) that local market forces (as experienced through diversification and partnerships by Gamma and Delta) are one of the major factors that influence the transformation of a subsidiary's role. Similarly, embeddedness of subsidiaries in local business networks reflects London and Hart's (2004) observation that local business networks and partnerships with local actors are strongly related to a subsidiary's performance and responsiveness to the local market, as also revealed by Jarillo and Martinez (1990).

Alpha, Beta and Delta benefited considerably from customer relationships due to proximity to market and accumulated experience at HQ, which had first entered China through local sales agents. The benefits are reflected in the optimization of process and responsiveness to local requirements. In addition, leveraging on existing business relationships such as licensed dealers (Beta), contract import licensees (Gamma) and experience in low cost production of products compared to its other sites (Delta) were adopted to eliminate sloppy activities and improve the efficiency of operations processes, which led to increased efforts to sense and orientate towards, local market requirements. Optimization activities, such as leveraging on existing business relationships, experiences and accumulated local market knowledge help to improve operational performance, and are important as a subsidiary shifts from serving global/HQ to local demands. Therefore, another dimension affecting the development of a subsidiary and its capabilities is the level of process optimization. In addition, as mentioned by Birkinshaw et al. (1998), the desire of a subsidiary to increase autonomy is one of the major drivers of subsidiary development. Alpha's and Beta's level of autonomy was an evident dimension of their subsidiary development, while Gamma and Delta were much less autonomous and highly depended on HQ operations.

Based on a review of the literature and supported by qualitative data, the book chapter "Exploring the changing roles of Western subsidiaries in China – balancing global priorities with local demands" looks explicitly at the role of foreign-owned subsidiaries in a host country (Hogenbirk and van Kranenburg, 2006) and the influence of various

contextual factors. The findings increase our understanding of the challenges faced by subsidiaries (cf. Reiner et al., 2008) and ways to cope with these challenges. Four factors were identified to affect the development of subsidiary operations in a local market namely: strategic importance, operations capabilities, embeddedness in local business networks, and level of process optimization. In order to change role, HQ must decide on strategic importance, the subsidiary must be embedded better in local networks; it has to improve its operational capabilities and upgrade its processes. As a managerial implication, the factors identified may guide managers to ascertain the role of a local subsidiary and, the capabilities required to match that role and exploit the capabilities for the benefit of the subsidiary or other subsidiaries in the MNC's international operations network.

5.7 Performance

Both Alpha and Beta have improved their operational performance in terms of cost, quality, delivery and flexibility. Both benefit from the low cost advantage of operating in China. Product quality is enhanced right from the design stage, which is made possible by the proximity of R&D to production. As Alpha's Technology Director put it: *"Quality is designed not produced"*.

The reduction in number of product defects and customer complaints at both Alpha and Beta is an indication of improved quality. That also helps the subsidiaries to save cost incurred in warranty and repairs. The time-to-market of new products is also enhanced through cross-functional collaboration to ensure that each relevant function is involved from the design stage to market launch. Having a wider and larger range of products and services compared to when Alpha and Beta established operations with low-skilled employees and, in effect low absorptive capacity. The flexibility of both subsidiaries has improved considerably. Hence:

Proposition 11: The development of server capabilities and beyond enhances improved operational performance.

Also financially, the performance of most of the case subsidiaries shows a strong positive trend. Alpha's financial performance, for example, has improved by approx. 20% annually in recent years, which indicates a positive growth rate of the subsidiary (Figure 5.2).

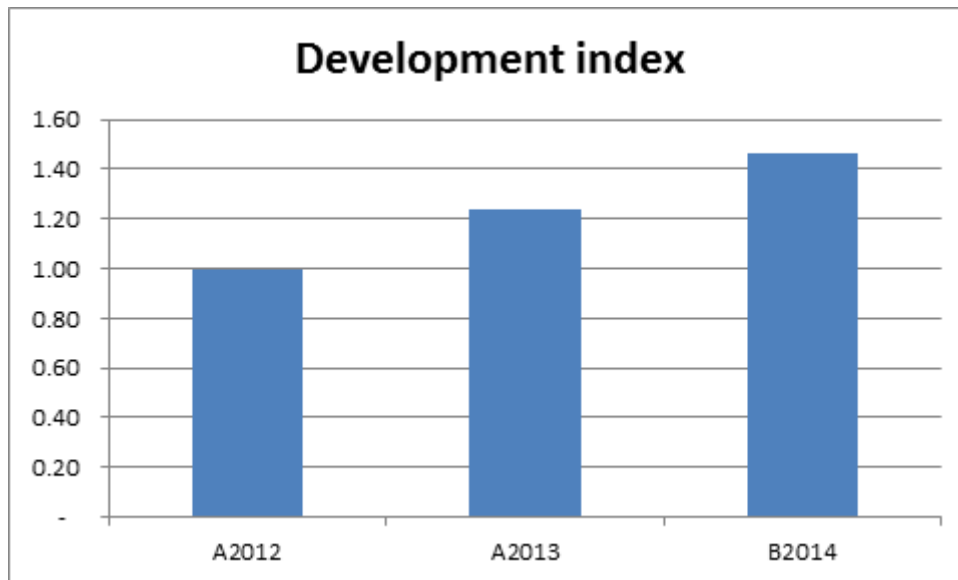


Figure 5.1: Development index of Alpha (source: Alpha's Marketing & Sales department).

5.8 Chapter summary

This chapter proposed answers to the research question in [Section 2.9.1](#) on the basis of the literature review in Chapter 2 and the case analyses in Chapter 4. Trajectories of evolution were abstracted from the two main case studies, as illustrated in [Figure 5.1](#). They were elaborated on from a subsidiary perspective. The trajectories appear to consist of four phases in which transformations of a subsidiary in terms of product, process, knowledge/capabilities and strategic role were pointed out. The aim of that was to reveal how a subsidiary evolves in the context of an operations network. From an operations perspective, the two trajectories are interrelated, as shown by [Figure 5.1](#), emerging in different subsidiaries simultaneously. After this, relocation and/or transfer of products, processes, and knowledge (in terms of varieties and volumes) were suggested to be crucial to the understanding of subsidiary evolution. Four factors that have contextual implications on subsidiary development were identified on the basis of the case studies. Taking these factors as a starting point, interactions among the relocation and/or transfer of products, processes and knowledge, and subsidiary and network evolution were investigated. Finally, a range of propositions on server capability development was formulated (see [Table 5.5](#) for an overview).

Table 5.5: Summary of literature viewpoints, corresponding research question and design, and empirical findings formulated as propositions.

Literature viewpoint (gap)	<p>What is known:</p> <ul style="list-style-type: none"> • Strategic roles of subsidiaries • Strategic role changes • Site capabilities • Operations capabilities • Dynamic capabilities • Subsidiary development • Capability development <p>What is not known:</p> <ul style="list-style-type: none"> • How subsidiaries develop capabilities in order to serve local market demands and global/HQ requirements. • How that leads to changes between HQ and its subsidiaries and their networks as a whole.
Research question	Research question: <i>How do subsidiaries successfully develop server capabilities, that is, the capabilities needed to get beyond low cost production, serving home base requirements, and develop access to and start serving their local market?</i>
Unit of analysis	Server capabilities development
Research design	Eight case subsidiaries and their evolution are analyzed, from different perspectives, including mandate gain at the subsidiaries, strategic role changes, trajectories, contextual implications and performance.
Propositions	<p>Proposition 1: <i>The initial mandate gain affects the trajectory of building server capabilities and beyond of subsidiaries.</i></p> <p>Proposition 2a: <i>Marketing & sales, production, supply chain and development related abilities are essential for building server capabilities and beyond.</i></p> <p>Proposition 2b: <i>The sequence in which these capabilities are developed determines the sequence of the subsidiary role changes.</i></p> <p>Proposition 3a: <i>Improved business environment, matured infrastructure and educated workers are important for developing a server plant and consequently its server capabilities and beyond.</i></p> <p>Proposition 3b: <i>The building of server capability and beyond is a stepwise expansive process.</i></p> <p>Proposition 4a: <i>Subsidiaries with key technology transferred from the parent company are more likely to achieve fast server capability development and beyond than subsidiaries without such key technology transferred.</i></p> <p>Proposition 4b: <i>Subsidiaries that receive expert support from HQ in the form of training, guided learning-by-doing and/or other forms of employee development, are more likely to achieve fast server capability development and beyond than subsidiaries that do not receive such support.</i></p> <p>Proposition 5a: <i>Subsidiaries led by more professional managers who have relevant industrial experiences are more likely to achieve fast server capability development and beyond.</i></p>

	<p>Proposition 5b: <i>Subsidiaries led by managers who have a relevant (i.e. Chinese or Asian) cultural and business background are more likely to achieve fast server capability development and beyond.</i></p> <p>Proposition 6a: <i>Subsidiaries with initial financing from specialized investors are more likely to achieve fast server capability development and beyond.</i></p> <p>Proposition 6b: <i>Subsidiaries with the ability to handle sophisticated financial transactions (financial capabilities) are more likely to achieve fast server capability development and beyond.</i></p> <p>Proposition 7: <i>Establishing R&D close to production enhances a subsidiary's ability to develop products to fulfill local demands.</i></p> <p>Proposition 8: <i>Expert mobility enhances the development of a subsidiary's sourcing capabilities as well as local supplier development.</i></p> <p>Proposition 9: <i>Continuous cross-functional interaction within a subsidiary and between HQ and the subsidiary enhances the development of the subsidiary's New Product Development (NPD) capabilities.</i></p> <p>Proposition 10: <i>Employing service support employees to sell products and gather product information in a subsidiary's main regional markets positively affects the subsidiary's business development.</i></p> <p>Proposition 11: <i>The development of server capabilities and beyond enhances improved operational performance.</i></p> <p>Research question in the book chapter: <i>how does the shift of primary strategic motive from serving global to local demands influence the capabilities and roles of local subsidiaries?</i></p> <p>The contribution is a set of factors that have contextual implications on subsidiary development in a local market namely: strategic importance, operations capabilities, embeddedness into local business networks and level of process optimization.</p>
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Chapter 6 Conclusions, implications, limitations and future research

6.1 Introduction

At the genesis of this research, four research questions were presented on how subsidiaries develop the capabilities to serve local market requirements using existing facilities. This concluding chapter presents the main points made in the previous chapters, and more importantly, translates the research findings into theoretical implications. Based on these research questions (Chapter 1), an extensive literature review was carried out and presented in Chapter 2. The review enhanced the development of a foundational framework for the research. Chapter 3 presents the research design. The research strategy adopted was exploratory studies, which reflects state-of-the-knowledge of the research's central theme. In Chapter 4, narratives of the two main cases are presented. Chapter 5 presents the cross-case analyses and discusses the research findings. The present chapter highlights the originality of the research and research conclusions in the form of a summary of the findings and contributions to subsidiary development studies. Furthermore, the theoretical and managerial implications of the research are discussed. Finally, the research limitations are presented together with, recommendations for future research.

6.2 Originality of the research

Literarily, originality can be expressed in the following ways: (a) a researcher carrying out a study that has never been accomplished before; and (b) a researcher's contributions to existing knowledge. From the first viewpoint, originality indirectly focuses on two elements, namely: creativity and innovation. According to Sternberg and Lubart (1999), creativity is the ability to produce work that is both novel (i.e. original, unexpected) and appropriate (i.e. useful, adaptive concerning task constraints). Following Schroeder et al. (1989), innovation can be expressed as: (i) the generation, evaluation and implementation of new ideas to meet the research objectives; (ii) application of new or different approaches or methods or technologies resulting in improved quality of an existing theory; and (iii) challenging the status quo, identifying opportunities and implementing non-obvious, significant changes that meet or exceed

the objectives of the case in point. With reference to the second viewpoint, originality can also be claimed in relation to contributions to the body of knowledge. In other words, originality is achieved when the study's results and/or findings have the essential prospect of refining existing knowledge or adding new knowledge and, thus, moving the frontier of the body of knowledge under review.

In this current study, the concept of server capabilities is related to subsidiary/firm capabilities. Hence, building server capabilities and beyond is significantly recounted as an indicator of the individual, group and/or organizational ability to match strategic role evolution with a subsidiary's capability to serve its local markets (Kim et al., 2011; Reiner et al., 2008; Vereecke et al., 2006). In line with that, a critical examination of how subsidiaries serve their local markets is a source for explaining the interrelationship of strategic role changes and capabilities development. Moreover, it is the researcher's thought that the need to develop an MNC's subsidiaries can only be achieved when the organizational units involved operate at a level where their capabilities match the strategic role changes required for long-term performance.

6.3 Contributions to theory

Research on server capabilities is in its infancy, and few studies provide empirical evidence of and deep insight into the development of server capabilities. The objective of this research is to develop theory on gaps identified in the literature in particular.

- While previous studies on subsidiary development have considered different roles subsidiaries may play in a company's operations network (Ferdows, 1997; Vereecke and Van Dierdonck, 2002), the capabilities needed to match the various roles (Kim et al., 2011); Reiner et al., 2008); Vereecke et al., 2006), have not been investigated to a large extent.
- Few studies take a specific contingency perspective on the development of server capabilities.
- As a consequence, better and more concrete understanding is needed regarding the effects of drivers and other contingencies on server capability development.

Two theoretical challenges were highlighted: 1) the relevance and timeliness of addressing the development of subsidiary and server capabilities using a contingency approach and 2) the need of having a framework representing vital aspects of building server capabilities and beyond.

Table 6.1: Synopsis of the findings, their empirical and theoretical support.

Findings	Supported by	Confirms or sheds new light on
Improved business environment, matured infrastructure and educated workers are important for developing a server plant and consequently its server capabilities and beyond.	Alpha, Beta	Cheng (2011)
The initial mandate gain affects the trajectory of building server capabilities and beyond of subsidiaries.	Alpha, Beta	Ferdows (1997); Kim et al. (2011) and Vereecke et al. (2006)
Subsidiaries that receive expert support from HQ in the form of training, guided learning-by-doing and/or other forms of employee development, are more likely to achieve fast server capability development and beyond than subsidiaries that do not receive such support.	Alpha, Beta	Doz (1996)
The building of server capability and beyond is a stepwise expansive process.	Alpha, Beta	Wæhrens et al. (2012)
Subsidiaries with key technology transferred from the parent company are more likely to achieve fast server capability development and beyond than subsidiaries without such key technology transferred.	Alpha, Beta, Delta, Zeta, Eta and Omega.	Smith et al. (2005)
Subsidiaries led by more professional managers who have relevant industrial experiences are more likely to achieve fast server capability development and beyond.	Alpha, Beta, Delta, Zeta, Eta and Omega.	Leonard-Barton (1992); Smith et al. (2005)
Continuous cross-functional interaction within a subsidiary and between HQ and the subsidiary enhances the development of the subsidiary's New Product Development (NPD) capabilities.	Alpha and Beta	Forsgren et al. (2005); McEvily and Marcus, (2005).
Establishing R&D close to production enhances a subsidiary's ability to develop products to fulfill local demands.	Alpha and Beta	Sun et al. (2007).

By studying the evolution of server capabilities in the context of subsidiary evolution, the research contributes to the literature on operational and dynamic, internal as well as external capabilities, contingency theory and subsidiary development.

As to the capabilities perspective, it was discovered that the number of server capabilities is not the most important; it is rather the aspects of server capabilities, such as managerial capability and technical capability that matters. The research also

demonstrates that interactions and joint problem solving between HQ and its subsidiaries and that between various functions within a subsidiary positively influences the building of server capabilities (Forsgren et al., 2005; McEvily and Marcus, 2005). The factors that affect the building of server capabilities in a local market context are unraveled. Moreover, the initial conditions for subsidiary development were identified. [Table 6.1](#) presents the synopsis of the findings, their empirical and theoretical support.

6.4 Managerial implications

Although this study has several limitations (discussed below) and can only arrive at tentative theory in the form of propositions for further research. Several implications for HQ and subsidiary management emerge. Among these, the mere possibility of systematically tapping subsidiaries for the opportunities within a local market clearly stands out. In addition, a subsidiary need to be equipped with distinct capabilities such as language skills, local market knowledge and cultural and business understanding, embodied in its local employees and not found elsewhere in the organization. Temporary resource constraints in the HQ and cross-functional collaboration at the subsidiary could be used to leverage on local resources. At the same time, corporate management should avoid local subsidiary management settling for routine local market operations within existing business networks, thus ensuring a constant sharpening of subsidiary capabilities in order to serve the requirements of the local market. In order to minimize risks resulting from local market negligence, clear targets should be set for local market development and translated into actions related to strategic role change, technical capability development, including the transfer of product, processes and knowledge, and personnel training and development programs.

6.5 Limitations

As presented in Chapter 3, the quality of the present research was guaranteed by addressing four tests, i.e. construct, internal and external validity, and reliability. The relevant information is presented in [Table 6.2](#).

Table 6.2: Construct, internal, and external validity, and reliability of the present research.

Test	Definition	How it was addressed in this thesis
Construct validity	The establishment of correct operational measures for the concepts being studied. The degree to which inferences can accurately be made from the operationalization in the study to the theoretical constructs on which this operationalization was based.	Triangulation: Multiple sources of evidence, namely document surveys, interviews, and observations, were used extensively to prevent respondent and interviewer bias, clarify details, and cross-check responses. Showing high consistency, multiple sources of evidence further provided stronger substantiation of constructs and enhanced the validity of the data collection. Respondent validation was achieved by sending the case reports back to the interviewees so as to provide any further comments, and give consent for their use in the research.
Internal validity	The extent to which we can establish causal relationships, whereby certain conditions are shown to lead to other conditions, as distinguished from fake relationships.	Suitable only for testing explanatory or causal studies, and not for descriptive or exploratory studies. Therefore, not considered in this present, mostly explorative, research.
External validity	Establishing the domain to which a study's findings can be generalized beyond the immediate (case) study (case studies rely on analytical generalization).	In order to propose server capability trajectories, contextual implications and performance, the findings related to the four research questions are organized. That could be refined by anomaly seeking research in the future. Further, previously developed theory was used as a guide against which the empirical results of the case subsidiaries were compared. By discussing the empirical findings in light of existing theory, analytical generalization was expected to be achieved.
Reliability	The extent to which a study's operations can be repeated with the same results.	Case study protocols were developed in order to increase reliability.

Although the quality of research was thus taken care of, the choice of research methodology, the number of cases, and the choice of industry in the main case studies yet place limitations on the generalizability of the findings. First, qualitative case studies are basically a subjective means of capturing data, which allow greater understanding and exploratory depth, which, however, are achieved at the expense of the precision, reliability, and testability associated with positivistic, for example survey or statistical modeling–based, research (Meredith, 1998). The researcher forms her/his own categories and templates, decides what to look at and what to ignore, what to record and what not to, and so on (Kaplan, 1986). Moreover, a single researcher is less able to deal with subjectivity on her/his own than if working closely with colleagues on data collection and analysis. In this case, the author has tried to recognize potential biases and remain sensitive to the context of the study using the literature and exploratory studies in order to reduce the effects of subjectivity. In addition, the case reports were sent back to the subsidiaries for validation in order to reduce the negative effects of having a single researcher.

Second, the findings and discussions in this thesis were derived from two main and six mini case studies. While acceptable for theory exploration, the small number of main

cases is clearly a limitation for the generalization of the presented concepts. This means that the observations stated in this thesis should be considered carefully, since they cannot be taken as “axiomatic”. Further tests using more case studies/surveys and refining by anomaly-seeking research are essential. Third, the study merely included limited and distinct production companies with HQ from the Danish context and subsidiaries from the Chinese context, and could therefore be influenced by international idiosyncrasies. That choice was made due to research funding considerations, as the research is one of the projects of the Sino-Danish Center for Education and Research (SDC). Another limitation is related to the number of potential interviewees, which was limited due to the high-level insight required and the breadth and depth of knowledge that would usually be held by a select few (CEOs, operations, supply chain, and other senior managers/directors) in any company. In effect, the observations reported in this thesis only reflect the views of those interviewees, which may have reduced the completeness of the set of observations in each case study.

6.6 Future research

This section presents potential future work that is suggested by the developments resulting from this thesis. For research on building server capabilities and beyond, the following areas of future study are identified:

- This study adds to subsidiary capability research by specifying a theoretical framework for how subsidiaries successfully develop capabilities to serve local market requirements. However, there is a need to address the limited process-oriented research on capability development of subsidiaries in the early developmental stage.
- Most research considers internal building and external leveraging of capability development of subsidiaries separately and this thesis is no exception. Further research is needed on the interaction between, and the effects of integrating, these two sources of capability development.
- Tools or processes for recognizing strategic role changes need to be developed and tested, so as to inform decisions on subsidiary development in a more structured manner.
- The case studies paid limited attention to performance. At the same time, they indicate the importance of investigating whether server capability development can actually lead to better performance. So, the observations reported in this

thesis should be considered carefully, as they may not be representative of good practice. Therefore, further research is needed to be performed to study the performance dimensions of the subsidiaries and explore the interdependence between different setups and subsidiary performance.

- Although three attributes (i.e., the interaction and collaboration between production and other functions, suppliers and customers, various operations purposes for production, and services to other functions, customers and suppliers given by production) for differentiating the server role of subsidiaries were proposed, they still need to be tested thoroughly in further case studies or a large-scale, quantitative study.
- The overview developed of the evolutionary trajectories subsidiary and server capability development ([Figure 2.6](#)) needs to be tested thoroughly by a survey or in a large scale sample of cases, including companies with different sizes, representing various industries and going beyond the Sino-Danish context, in order to improve generalizability and to enhance the understanding of how decisions are managed in relation to different contexts.
- The case studies implied that the adaptation of subsidiaries to local requirements is closely linked to corporate strategy and the internal and external environment. Future research is needed to clarify these inter-relationships.
- This thesis mainly focused on server capability development. The unit of analysis could be broadened in future work, on the one hand, from operations networks to other functional networks (e.g. R&D or engineering networks). Furthermore, the level of analysis may be extended from intra-firm networks to inter-firm networks.

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Appendix A: Introductory pack

SECTION 1: RECOMMENDATION LETTER

Dear Madam/Sir,

I am writing to you on behalf of my PhD student Oluseyi Adeyemi and my co-supervisors, Professor Brian Vejrum Wæhrens and Associate Professor Dmitriy Slepnirov.

Many western firms that have invested in far-east countries, including China, to benefit from low-cost labor, are extending their activities to include marketing and sales, supply chain management, new product development and even R&D to develop and serve the local market place. This requires what we call the development of server capabilities. Oluseyi is researching that change. The title of his research is “Building server capabilities and beyond—trajectories, contextual implications and performance”.

An important part of his research involves case studies of local subsidiaries of Danish MNCs in China. Based on these studies, Oluseyi will develop a number of academic and practitioner papers and, eventually, a PhD thesis. The most important aim, from a practitioner perspective, is to develop detailed suggestions on how companies could adapt the development of their subsidiaries to local contexts in order to enhance the subsidiaries’ business and operational performance. See Oluseyi’s introduction letter for further details.

We will call you shortly, and hope to hear you will be willing and able to help Oluseyi and our research center with this important project. In the meantime, please do not hesitate to contact Oluseyi Adeyemi, one of my co-supervisors or me for further information.

Kind regards,

Dr. Harry Boer, PhD

Professor of Strategy and Organization

Center for Industrial Production

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SECTION II: INTRODUCTION LETTER

Dear Madam/Sir,

My name is Oluseyi Adeyemi. I am a PhD student at the Center for Industrial Production (CIP) at Aalborg University, Denmark. My supervisors, Professors Harry Boer and Brian Wæhrens and Associate Professor Dmitrij Slepnirov, and I would like to invite your organization to participate in a study on how local subsidiaries of Danish companies in China develop server capabilities, i.e. capabilities that enable them to penetrate and serve local markets using existing relationships.

There are several reasons that prompted us to initiate this research. First, there are significant theoretical gaps in this area of operations management and strategy research. However, more importantly, many companies lack adequate and effective tools that could assist them in the process of developing server capabilities in local market contexts. My project entitled “Building server capabilities and beyond—trajectories, contextual implications and performance” addresses this crucial subject. By conducting a series of case studies of Danish multinational companies’ (MNC) local subsidiaries in China, I aim to provide detailed suggestions on how companies could adapt capabilities development programs to their local contexts in order to enhance their business and operational performance.

As (name of company) has operated in China since (year), we would greatly value an opportunity to involve your local subsidiary in China in our study. Your company’s participation will allow my supervisors and me to conduct field research (observations and interviews with employees representing various functional areas) at your site in China. The lessons learned from studying your subsidiary and other sites will be used to produce customized feedback to your company, as well as a report with the main findings of the project.

I am particularly interested in learning about the extent to which several capability development initiatives have been used in your subsidiary, and how effective they have been in terms of changing the subsidiary’s role in your production network, its operational activities, capabilities, and performance. A sample of areas and focused questions in the research is enclosed to this letter.

Please note that the study will be done in line with maximum adherence to ethical guidelines and considerations. All data collected in this research will remain at CIP and

will not be disseminated in such a way that it pinpoints participating companies.

I appreciate your time and consideration. I will contact you by phone as soon as possible and hope to hear that you will be willing to participate in this study.

In the meantime, please do not hesitate to contact me for any queries you might have.

Yours sincerely,

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Sample of research area and focused questions:

- Your operations 5 years ago, today and your plans for the next 5years.
- Managing the transformation from serving global or HQ demands to serving local demands.
- Using investments already made in China to access the Chinese market.
- Your operational performance 5years ago, today and 5 years ahead.
- Fundamental lessons learnt (key challenges and successes) in order to penetrate and serve the Chinese market.

SECTION III – Summary of the research project

The study will be exploratory. A pilot interview, which will last no more than an hour, will be scheduled with your functional managers in order to get an overview of your organization's current approach towards building server capabilities and beyond for sustainable performance. The purpose of the exercise is to enable the PhD student to highlight issues related to the development of server capabilities towards sustaining long-term performance. This will be achieved by investigating:

- (i) The dimensions as trajectories shaping the role of subsidiaries.
- (ii) Contextual influences, including (headquarters') competitive, operations and globalization strategy; industrial, product and process (e.g. complexity) characteristics; company size (in terms of financial and human resources); and local characteristics (e.g. infrastructure, availability of a qualified workforce, market characteristics, competition).
- (iii) Managerial challenges faced by (Danish) headquarter and their (Chinese) subsidiaries in relation to the development of server capabilities.
- (iv) The influence of server capability development on operational performance

All data will be compiled and used to develop suggestions in ascertaining how local subsidiaries develop server capabilities in order to maintain long-term performance. At the very end, the results will be shared with the research group, your organization and other participating organizations. However, your employees' and organization's identities will be anonymized.

Contact details

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SECTION IV – The research group

The university

Aalborg University Centre was inaugurated in 1974. In 1994, the university changed its name to Aalborg University. Over the past 39 years of its existence, Aalborg University has gained and continued to maintain a place among the highly regarded top universities in Denmark and internationally. In the QS university ranking for the 2013/2014 academic session, Aalborg University is among the top 350 universities in the world.

Aalborg University hosts a number of leading-edge research centers, one of which is the Center for Industrial Production (CIP). A national center of excellence in industrial manufacturing, CIP is interdisciplinary in nature, and works closely with industrial collaborators and other academic research groups conducting research in its areas of interest. The Faculty of Engineering and Science in which CIP is based has an enviable international reputation for being at the forefront of technological innovation and for maintaining strategic links with industry.

The research group

CIP carries out research on all aspects of manufacturing organization and management including the development and operational aspects of business. The research strategy of CIP is to improve the capability of organizations to develop and deploy efficient and effective business processes and engineering systems through a better understanding of technological, organizational, managerial and human factors. The operational strategy of the group is to create a portfolio of complementary projects that address defined themes from a multi-disciplinary and multi-departmental perspective, thereby ensuring cross-fertilization of existing and emerging knowledge. There are more than twenty researchers within the group who are working in close collaboration with industry and other academic groups both in Denmark and internationally.

Scope of the research

The scope of the research is within the Innovation Management theme of the Sino-Danish Centre for Education and Research (SDC). SDC is a joint project on education and research between eight Danish universities, the Danish Ministry of Science, Innovation and Higher Education, the University of the Chinese Academy of Sciences (UCAS) and the Chinese Academy of Sciences (CAS). The overall aim of SDC is to

promote and strengthen collaboration between Danish and Chinese research and teaching environments for the benefit of both countries. The research seeks to discover how local subsidiaries build server capabilities that will guarantee long-term performance. This is particularly difficult as local subsidiaries operate in highly multifaceted, unpredictable business domains and local market contexts. This research will show how collaboration skills and specific training strategies affect performance of local subsidiaries. Specifically, at the end of the study, participating organizations should be able to identify critical dimensions needed to enhance their capacity to promptly generate alternatives amidst inherent complexities of subsidiaries' role changes, and uncertainties in local market contexts.

Appendix B: Research protocol

The research protocol can be detailed as follows. In each case study, the most senior staff associated with general management and/or with production and operations, were interviewed.

Building server capabilities and beyond: Trajectories, contextual implications and performance

Protocol for conducting case studies

Introduction to the case study and purpose of protocol

- How do subsidiaries develop capabilities to perform its server role effectively?

Tentative propositions

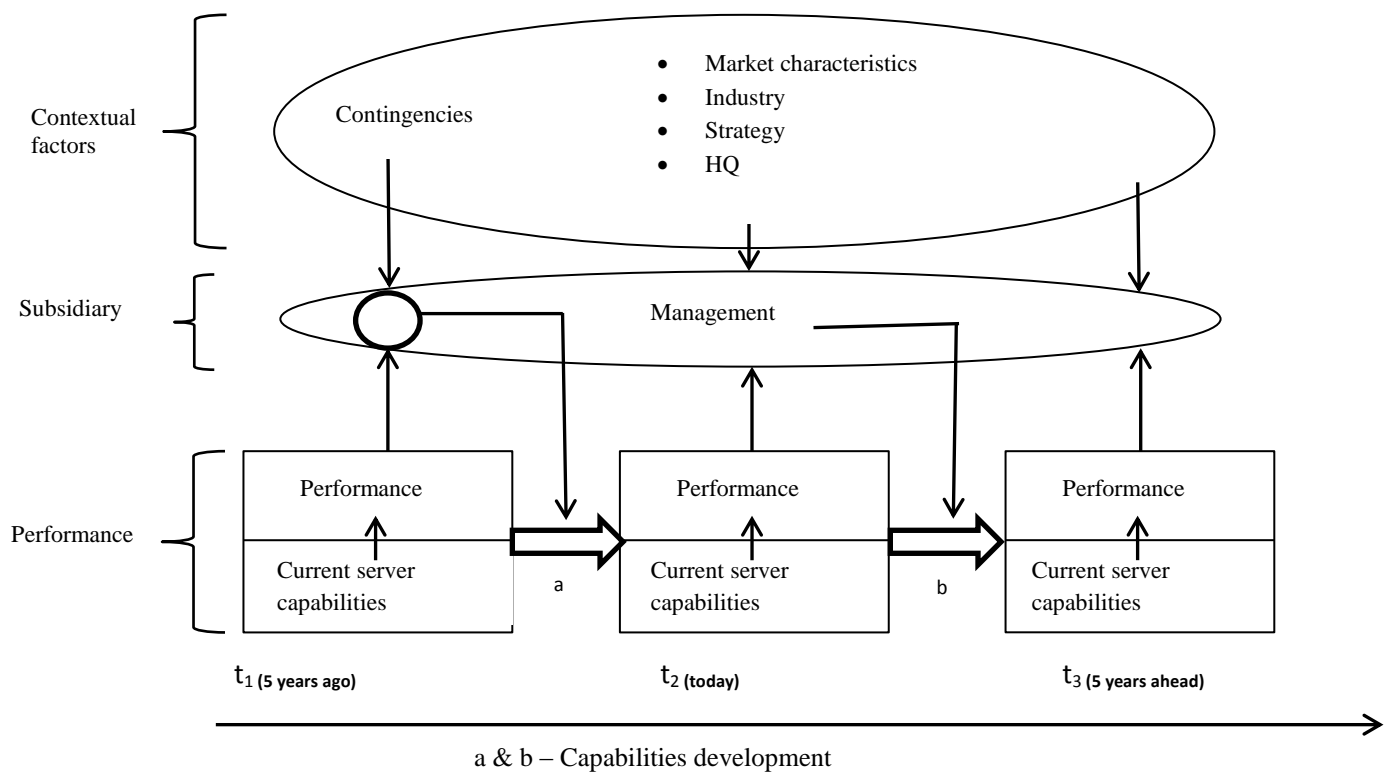
P1: The development of server capabilities depends on management decisions based on their interpretation of current server capabilities, performance and contingencies (Research framework).

P2: Interaction and joint problem solving between functional departments influence the development of server capabilities in a local subsidiary (Forsgren et al., 2005; McEvily and Marcus, 2005).

P3: Interaction and joint problem solving between HQ and local subsidiary influence the development of server capabilities in a local subsidiary.

P4: Managerial and leadership skill plays an important role in the performance of local subsidiaries in a local market.

Theoretical framework for the case study



Theoretical framework for this thesis (Source: Figure 2.6)

This case study protocol serves as a standardized agenda for inquiry on capabilities development in a local market context.

1. Data Collection Procedures

- Sites to be visited
 - Alpha – HR Director and other functional directors.
 - Beta - Production subsidiary China – Fulfillment Manager.
 - Gamma – Shanghai, China – Regional Manager
 - All subsidiaries visitation would be in China.
- Company information (Industry, Products and Market)
 - Organizational profile
 - Background and career paths of interviewees
- Data collection plan
 - Data gathering before site visits - review of annual reports, media material and other available archival material on the website of the companies. List of case study questions were sent to the interviewees by email.
 - Data gathering when on site by November 2012, August, 2013 and March, 2014 (semi-structured interviews, presentations by interviewees, plant observations by researcher)
 - Data gathering after site visits (review of documents, presentation to customers and archival materials collected during and after site visits)
 - Triangulation of data by interviewees, peer-researchers and documents.

2. Outline of the case study report

- Development of server capabilities in the organizations
 - Initiatives on building capabilities in the organization (learning by doing, training, buying new equipment)
 - Reasons for developing server capabilities (e.g. R&D/Innovation and Production)
- Contextual factors affecting the development of server capabilities
 - Capabilities development to date: events, issues and challenges
 - Outcomes and implications of the development process
 - References to presentation material, transcripts and documents on the website.
 - List of persons interviewed
 - Regional Fulfillment manager, Corporate production & Supply Chain
 - Regional Manager
 - Senior Manager
 - R&D Director, Blade and Innovation
- Performance

3. Case study questions

- **Development of server capabilities**
 - What industry does your subsidiary belong? (ISIC Rev 3.1)
 - Is the subsidiary expanding or reducing its operations in the local market?
 - What are the drivers of your subsidiary evolution?
 - Does subsidiary evolution involve transfer of resources and capabilities from the HQ? (Zaheer, 1995)
 - What would you say are your core-competencies and how do they develop over time (Birkinshaw and Hood, 1998; Egelhoff et al., 1998).
 - How does the core competencies compare with HQ and other subsidiaries? (Hood and Taggart, 1999)
 - Does the subsidiary role change involve integration of various activities of the company? (Malnight, 1995).
 - What were the major challenges faced by subsidiaries operations processes in China (emerging countries) 5 years ago, presently and what would they be 5 years ahead and how can they be resolved? (Reiner et al, 2008).
 - How does HQ influence the strategic roles of subsidiaries (Bartlett and Ghoshal, 1989; Prahalad and Doz, 1999).
 - Who is responsible for the development of the subsidiary's resources (Birkinshaw and Hood, 1997)
 - What are key resources within your subsidiary's network? (Andersson et al., 2001, 2002)
 - How does your subsidiary determine its own roles (Bartlett and Ghoshal, 1986; Birkinshaw and Morrison, 1995; Gupta and Govindarajan, 1991; Randoy and Li, 1998)
 - What is the role of your subsidiary?

- How do you interact in your Chinese subsidiary? (Amit and Schoemaker, 1993)
- How do you support functional activities in your Chinese subsidiaries? (Voelker and Stead, 1999)
- Why is the fundamental shift in the strategy of your subsidiary? (White and Poynter, 1984)
- How is the subsidiary skill level compared to industry?
- Is the subsidiary autonomous from HQ in terms of operations activities, do you make: your own decision, cooperate with HQ, or just implement HQ decision?
- Could you share an example of how you develop capabilities for your operations in China?
- How do you distribute and support your products with customers?
- From your experience operating in China, what are the fundamental lessons learnt? (Key successes and key challenges)
- **Contextual factors**
 - Can you tell me more about your markets and server capabilities? (Luo, 2000)
 - How mature is the market?
 - How dynamically is the market changing in terms of technology?
 - How does Chinese market influence your operations? (Holm and Sharma, 2006)
 - Can you tell me more about your industry and server capabilities (in terms of threat of new competitors, threat of substitute products or services, bargaining power of suppliers, bargaining power of buyers, rivalry among existing competitors?
 - Can you tell me more about your size?
 - Can you tell me more about your products and server capabilities?
 - Can you tell me more about your customers and server capabilities?
 - Can you tell me more about your customers and server capabilities?
 - How many sites does your subsidiary have in China (one or more), what are the consequences of that with respect to server capabilities?
 - How does the behavior and mindset of China affect subsidiary's role in decision-making? (Ghoshal and Nohria, 1989)
 - How do you build up position in the local environment? – by acquiring alternative value-added resources with the help of external network partners (Schmid and Schurig, 2003).
 - Are the product characteristics for global or local markets?
 - Is the subsidiary role determined by location advantages/political economy issues? (e.g. National or regional location advantages)
 - What is your subsidiary's mode of entry into China: wholly owned subsidiaries, joint venture, contractual relations? (Chowdhury, 1992; Root, 1987 and 1994; Birkinshaw and Hood, 1998)
 - How good are you with network configuration, governance and developing

of supply networks in the course of time?

- **Performance**

- What are the functions or activities performed in your subsidiary? (Skinner, 1985).
- Are there provisions of technical and managerial support for second-tier suppliers? (Krause and Ellram, 1997).
- Cooperation for problem solving with suppliers? (Monczka et al. (1993)
- How do you gather information for local market? (Holm and Sharma, 2006)
- How do Chinese subsidiaries perform financially (e.g. Profit, Assets, ROI, Sales, Market share) 5 years ago, today and 5 years ahead?
- What proportion of the business unit annual sales is invested in product/service related research and development?
- What proportion of the business unit annual sales is invested in process equipment?
- What proportion of the business unit annual sales is invested in workforce/staff training and education?
- How do Chinese subsidiaries perform operationally 5 years ago, today and 5 years ahead? (cost, quality, speed and flexibility)
- How does your subsidiary operational performance compare with that of your main competitor(s)?
- How does your subsidiary collaborate with HQ? (Birkinshaw, 1997).

More than a questionnaire or instrument, the above list merely outlined the subjects to be covered during an interview, stated the questions to be asked, and indicated the specific data required. In regard to different case companies, adjustments based on above question were necessary. Some questions were not asked, some questions were explored deeply, and some new questions were added for specific cases.

Appendix C: Conference paper

Building server capabilities in China

Oluseyi Adeyemi (aaa@business.aau.dk)

Dmitrij Slepnirov

Brian Wahrens Vejrum

Harry Boer

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Abstract

The purpose of this paper is to further our understanding of multinational companies building server capabilities in China. The paper is based on the cases of two western companies with operations in China. The findings highlight a number of common patterns in the 1) managerial challenges related to the development of server capabilities at offshore sites, and 2) means of how these challenges can be handled.

Keywords: Server capabilities, offshore factories, China.

Introduction

Many western multinationals have defined China as their second home market. This poses a range of new demands which, considering numerous examples of failures, are not always easy to meet. The key definitions and literature sources directly connected with transition processes in emerging economies, such as China, are established and existing literatures have also focused on the characteristics of the entering firm, in particular its resources and capabilities (Barney, 1991; Anand and Delios, 2002) and its need to minimize transaction costs (Buckley and Casson, 1976; Anderson and Gatignon, 1986; Hill, Hwang, and Kim, 1990). While resources and capabilities are certainly important (Peng, 2001), recent work has hardly considered the market orientation of offshored sites and, especially, the transformation from a low-cost based offshore factory to a more market-oriented server factory.

This transformation demands new operational configurations, proper management of existing capabilities and building of new capabilities so as to cater for arising challenges and achieve desired operations. The relationship between the server factory and the home plant is the key area of concern in this paper. Before the change of role from offshore to server factory, the production function in the offshore factory relates and communicates with the production and related functions back home. The transfer of, for example, R&D activities to an offshore factory, extends the set of relationships to other departments such as R&D and marketing. Thus, the transition from a low-cost plant to a server factory increases the pattern of relationships between “mother and child” and, in effect, the complexity of the coordination between the two sites.

In addition, the offshore plant needs to develop a range of capabilities needed to perform its new role effectively, for example the capabilities to handle customer enquiries, configure customized product solutions to serve the market, provide technical clarifications and support to sales companies/customers, give data support to adapt

products to market requirements, update product and manufacturing documentation for workflow systems/documentation in order to make tacit knowledge explicit, and perform quality tests. The purpose of this paper is to develop a number of propositions assisting managers in building these server capabilities and furthering our understanding of capability transformation.

The next section introduces the theoretical background of the study. Following a description of the research design, the two case studies performed for the purpose of the study are presented. Based on a discussion of the main findings, a number of propositions on the development of server capabilities are suggested. A discussion of the limitations of the study and directions for further research concludes the paper.

Theoretical background

Studies contributing to understanding international operations can be found partly in the international business (IB) literature and partly in the domain of operations management (OM). The IB literature represents a well-established understanding of the internationalization process, and its drivers and motives. Initially, the reasoning for establishing international operations was examined mostly from the perspective of foreign direct investment (FDI). Some classic contributions find that in the 1970s many U.S. firms directed their FDI to developing countries in order to capitalize on the low labor costs in these countries (e.g. Moxon, 1975) or play off currency fluctuations (Leff, 1974). Later research identified factors such as entering new markets, market proximity, and access to natural and/or intellectual resources. The OM literature has generally been more concerned with the effectuation and capabilities of international operations.

Strategic motives affect the role the offshore sites are given. A typology of plant roles was proposed by Ferdows (1997), and tested (and largely supported) by Vereecke and van Dierdonck (2002). One of Ferdows' (1997) types, the offshore factory, is established to produce specific, usually low-cost, items, which are then exported either for further work or sale. Investments in technical and managerial resources are kept at a minimum. Little development or engineering occurs at the site and local managers rarely choose key suppliers or negotiate prices. In contrast, a server factory (Ferdows, 1997) is a production site that supplies specific national or regional markets. It typically provides a way to overcome tariff barriers and reduce taxes, logistics costs, or exposure to exchange rate fluctuations. It has more autonomy than an offshore factory to make modifications in products and production methods to fit local conditions, although its authority and competence in this area are limited.

Vereecke and van Dierdonck (2002) explain that offshore sites with market and skills/know-how proximity as the primary drivers play a higher strategic role than offshore sites with low labor cost as the primary driver. The pressure to reduce time-to-market, increase customer service, or adapt products to local tastes, for example, may stimulate local management to develop the local competence base and increase its server capabilities by shifting focus from low labor cost to market serving capabilities.

Capabilities represent a firm's ability to deploy its resources so as to achieve specific results. Various scholars (e.g. Schreyogg and Kliesch-Eberl, 2007; Teece et al., 1997; Winter, 2000) suggest that capabilities are the result of collective learning processes, present a combination of unique technologies and skills, and are embedded in the organization and its procedures. Sustainable success depends not only on a company's operational capability to design, produce and deliver a wide range of low cost, high quality products rapidly and reliably (Boer, 1991) but also on its strategic and adaptive capability to adopt and/or develop, and implement, the products/services, processes and process technologies, management systems and forms of organization fitting to its future situation. Today it is generally accepted, both in academia and in industry, that

these capabilities require organizations to formulate and implement consistent, strategy-driven decisions on manufacturing (Hayes and Wheelwright, 1984).

Whereas there are many publications identifying drivers for offshoring and describing different types or maturity levels of offshore plants, little is known about the process such sites go through, from low cost-driven to market-oriented. The central question in this paper therefore is: *how do foreign firms build the capability to adapt their operations in China so as to get beyond low cost, serving home base requirements to serving local market conditions?*

Methodology

A qualitative approach, i.e. case studies of two western industrial companies, is adopted in this study. One of several strategies of qualitative enquiry, case studies are well equipped instrumentally for furthering understanding of particular issues or concepts which have not been deeply investigated so far (Eisenhardt 1989; Voss et al. 2002; Yin 2009). Consistent with the exploratory nature of the present study, propositions for further research will be developed.

The problems related to getting access to reliable archival data and conducting questionnaire-based surveys in emerging, as compared to developed, economies are well-known (Estrin and Wright, 1999; Hoskisson et al., 2000; Tan and Peng, 2003). Hence, we conducted case studies of two western industrial companies. Achieving a higher degree of certainty about the propositions of the study played a role in deciding the number of cases and the key criteria for the selection of the cases: the case companies should have 1) industrial products, 2) operations in China, and 3) achieved a good level of maturity in their globalization process.

Empirical data were collected between March 2011 and March 2012, using a three-step approach. First, secondary sources, such as annual reports, press releases, media materials, were analyzed to provide the researchers with an overview of the companies and their global operations. Second, as our objective was to generate in-depth insight, we conducted semi-structured interviews, which allowed us to obtain facts and opinions about, as well as insights into, phenomena from first-hand sources (Yin, 2009). Before the interviews, protocols were developed in order to enhance the reliability and validity of the case study data (Yin, 2009; Voss et al., 2002). See Appendix for an overview of the topics addressed in the interviews – similar topics guided the analysis of the secondary sources mentioned above. The interviews typically lasted a quarter of an hour to 2 hours. They were digitally audio-recorded and, afterwards, transcribed immediately. This approach was both to maximize recall and to facilitate follow-up and filling of gaps in the data (Voss et al., 2002). Finally, combining document reviews and data transcriptions, case reports were written and returned to the companies for verification. After several rounds to and fro, the case reports were finalized.

Data analysis was carried out parallel with data collection, which allowed us to take advantage of flexible data collection, making relevant adjustments along the way (Eisenhardt, 1989) and creating an iterative process between interviews, literature reviews and analysis. Data analysis in this study followed the approach of transcription; identifying a thematic framework; identifying themes, mapping and interpretation.

The research relied extensively on triangulation (McCutcheon and Meredith, 1993): the use and combination of different methods (document surveys, interviews, on-site observations) to study the same phenomenon provides stronger substantiation of constructs and enhances the validity and reliability of the data collected (Eisenhardt, 1989). An analysis of the case narratives, including in particular a confrontation of the cases with existing literature, produced propositions on the development of server capabilities, including the challenges related to that as well as possible solutions.

Case Studies

Case A

The company is a western MNE working in the industrial equipment sector. Its strategy to penetrate emerging economies has led to significant changes in the organization. Before the year 2000, all operations (R&D, Sales and Support functions) were located in Germany. R&D skills were the main competence of the German site. In order to take advantage of low cost labor, two other factories were built in Slovenia and Slovakia for production. There was no sales operation in Slovenia and Slovakia; all the sales were focused on the Chinese market, where the company sold a major part of its products and solutions through its sales offices and another big brand group. In 2008 the company decided to move production and product development to China in order to provide better support for the local market and to avoid fluctuations in exchange rates. This meant that an entirely new capability would have to be built in China. Skilled R&D staff from Germany was used to train the employees in China. Gradually, the German site was downsized and eventually lost its functions and, with that, a lot of knowledge.

The case company already sold its products for light commercial and mobile applications in China. To serve the Chinese market better, the company expanded its business focus by introducing its most recent household applications. Based on a new platform, the new series of household products were a significant upgrade to a range that covers the entire field of household appliances. Being 50% more silent than comparable products, the new series offers a substantial advantage in applications that rely on low noise operation. The product was adapted for low noise operation through its layout and installation coupled with additional pressure mufflers. In today's global competition, manufacturers of industrial equipment are also constantly looking for ways to improve the energy efficiency of their products with the smallest possible investment. By utilizing the efficiency of the products, the manufacturers of household appliances can save considerable R&D and production resources when optimization was needed. Furthermore, the products were available in an extra robust version for tropical adaptation, which is perfectly suited for markets (e.g. China) with high ambient temperatures and/or unstable power supplies. The company products also have quality (ISO 14001 and 9001) standardization.

To balance the risk of production, the company built two plants in China. Most of the operations are outsourced (about 80%) in order to cater for the lack of technical competencies in the China office. The ratio between outsourced units and in-house production in the product have increased from 50/50 in the early 2000 to approximately 80/20 in 2011, requiring an augmented set of skills from purchasing to supply development.

Case B

The company is one of the world's leading industrial equipment manufacturers. The company started in China with a small representative office in 1994. It later grew to have sales offices in each region of China to support its customers. The sales offices are managed by Chinese recruits because it is difficult for expatriates to sustain customer relationships in China due to language barriers. The company moved production to China in 1997 in order to be present in a market that represents 25% of the company's global sales, grows 21% per year and will in 2025 have the same buying power as the US (USD 300Million). Establishing operations in China brought with it the need to establish R&D there, too, to support global product development and to develop local products. However, the company's R&D was set up in China by employees without formal training or experience in R&D. Therefore, it took a lot of time to build the

competence suitable for local operations.

The Chinese market for industrial equipment is strategically divided into three levels. Level A concerns strategic products that are sold to environmental treatment plants, governmental and world financed projects. It is important to know that 70-80% of sales in China are project related (e.g. building services) because selling through the industrial sector is slow. Level B is where the company competes with local brands under another name which cannot be traced to it. The purpose is to prevent the local competitors from graduating into level A where the company is having a strong competitive edge. Competing on level B also gives the case company the opportunity to develop new product variants with local customers to achieve performance levels that no other company could promise. However, it is interesting to know that the local Chinese companies have started to compete with the international companies at this level using product price as the main competitive criterion. Targeting local customers, level C is where the company competes under an entirely different name as well, with lower-quality products, which cannot be traced to it. These products are adapted to local customers' requirement in order to aid this customer's business.

In order to adapt to local market conditions, the case company also gives aftersales licenses to some accredited companies to coordinate their services. It has likewise reduced the number of its dealerships by upgrading some of the previous dealers to licensed dealers. Those upgraded as licensed dealers are the dealers who are big enough in terms of annual turnover or those that have shown a steady growth in their business with a close relationship with the case company. In offshoring to China, the case company has discovered three fundamental challenges: 1) the need to speed up product development because the original three to four years lead time from business case to market launch was too long in the local market; 2) finding and retaining the right people to learn and understand the local needs; and 3) lack of international insight of local recruits. To address these three challenges, skilled local recruits are hired and deployed abroad for some period in order to acquire standardized skills and to adopt them on return. Service support employees are also recruited and located close to regional sales offices to provide customers with required services. Facilities or laboratories to encourage product testing and quality are also built.

Discussion

The case companies represent the industrial equipment industry but differ in terms of parameters such as size, product and customer focus. Notwithstanding, we can detect some similarities, which are proposed as a set of principles, processes and solutions that can guide a manufacturer in overcoming the challenges related to, and successfully manage, the transition process from an offshore factory to a server factory in China. The analysis of companies involved in this study reveals that they were configured on an international basis and consisted of decentralized and nationally self-sufficient subsidiaries, which related actively in an exchange of skills, services and information. Although the journey towards self-sufficiency is yet to be fully realized, such a multinational mode of organizing operations seems to depend on some factors. First, the foreign direct investment (FDI) perspective of establishing international operations. Second, benefits of offshoring, for example, low cost manufacturing (low cost energy, low cost raw materials, and low cost labor), access to new knowledge and access to local markets stimulate manufacturers in China to use overseas resources both internally and externally, for standardized tasks and to gradually upgrade themselves to become a server factory. Third, a fast-growing market reinforces the drive towards market-oriented production. Table 1 shows that server capabilities are built and used differently. We suggest the following propositions on the capability transformation of the cases:

Proposition 1a: Creating an appropriate mandate and safe environment to experiment with company equipment allows the development of reliable and quality products.

Proposition 1b: Recruiting skilled local labor with engineering capabilities to explore and exploit the market aids the building of product adaptation capabilities to local conditions (understanding local market demands).

Establishing an R&D function alongside the production in China and the presence of a rich supply of skilled engineers in China (Sun et al., 2007) provide the possibility to co-develop products to serve the Chinese market. A crucial element in adapting to market-oriented production by building server capability is the deployment of experienced R&D workers to China from headquarters so as to transfer key skills acquired by experience, avoid its dearth in case of the experienced worker resignation, and advance the skills of the local recruits (Case A). Case B facilitated learning/ acquisition of skills by opening a R&D office in China, which provided new knowledge to the headquarter about the Chinese market and, acting as a center of excellence, partnered with headquarters in building strategic capabilities for emerging market operations (Vereecke and van Dierdonck, 2002).

According to Vereecke and van Dierdonck (2002), adapting products to local needs stimulates market-building capabilities. This is reflected through the recruitment of highly skilled workers with engineering skills in both case A and B. Product adaptation to market demands enhances cooperation with customer towards fostering business interdependently (case B). Both cases developed the sourcing capabilities of their suppliers by increasing their skills and maintaining a close relationship with them, enabling partnerships.

Proposition 2: Sourcing capabilities are developed by maintaining close supplier relationships (market knowledge and specialized skills acquisition) and reducing the number of outsourced operations.

Both case A and B support the importance of new products brand and variants, corresponding to minor modifications in products and production methods to fit China conditions (Ferdows, 1997). Case A adopted this method so as to diversify its business and render value to particular customers; case B as a competitive weapon to have advantage over competing companies in the same business category/level.

Proposition 3: New Products Introduction (NPI) capabilities are built through continuous interaction between home-based factories and customers and/or after sales services in China.

Both case companies have physical facilities in China in order to avoid fluctuations due to foreign exchange, logistics costs and to serve the Chinese markets (Ferdows, 1997; Leff, 1974).

Proposition 4: Although globalization allows operations to be virtual, physical presence of production facilities better reveals and addresses the dynamics in the host market.

Table 1 – How server capabilities are used in the case companies

Server capabilities	Purpose of the server capability	Feedback/suggestions to customers, other functions	Found in
Supplier development	Providing technical and related consulting to suppliers and helping them to improve	Documents, experience and knowledge for helping suppliers to improve	Case A and B
Production facility in China	Bureaucratic reasons To be close to customers in order to facilitate transactions/avoid foreign exchange fluctuations To retain/improve global sales	To balance the risk of production Information on how to reach customers	Case A and B
Rapid/reliable delivery of products to customers	To serve the local markets efficiently	Sales offices in all regions Opportunities for socialization and collaboration Companies with strong social resources often succeed Generation of new ideas for future advancement	Case B
Technical know-how/ highly qualified workers	To provide technical and product benefit information to customers To cater for lack of required skills	To provide required services and to ascertain customers specifications	Case B
Environmental adaptation of products/cooperation with customers	To make product useable in the market served	Reliability of products in local markets	Case A and B
New product brands and variants development	To customize products according to different users	New products matching customers' demands Regional variation does not affect product adaptation	Case A and B
New business diversifications (e.g. district heating)	Platform to develop new ideas	Opportunity to turn knowledge and idea into products	Case B
Specialized skills for product testing	To ascertain product quality before leaving the company	Purchasing agreement with clear product status	Case B
Outsourcing cooperation	To augment lack of skills Customer-specific service to ascertain higher customer satisfaction	The core competency should be retained in-house, only a fair percentage of operations should be outsourced	Case A
Fast service or technical support to customers	To provide technical and product related support to customers	Support workers close to sales regional offices to provide required services	Case A and B

Cases A and B gave insight into the responsiveness of the companies to provide prompt technical support to customers as a result of their embeddedness in all regions of the national market served. So, we argue that to build server capabilities in China, it is important for product service support centers to be present in all relevant regions in China to attend to local customers' needs. More communication between customers, product service support and other relevant functions should be encouraged as well.

Proposition5: Establishing service centers focused on the Chinese market helps rapidly developing the business and building customer relations.

Furthermore, supply capabilities are built taking charge of sales, delivery, customer relations etc. Inter-functional coordination, from a single strategic demand to a wider range of different demands aids the ability to serve the market efficiently because the operations function is no longer isolated but embedded in the organizational network. Hence, office support employees are recruited to process and direct enquiries/information to appropriate functions and to act as the inter-link across functions.

Conclusions, limitations and further research

The study attempts to bridge the gaps identified in the existing literature by reflecting not only on the capabilities of offshore sites but how they build capabilities going beyond those needed for low-cost production. The case studies performed for that purpose reflect challenges for offshore plants to develop themselves to market-oriented server factories, a shift from cost orientation with the production of low cost components that are transported for assembly back home, to a situation in which products are produced completely in China to serve the Chinese customers. On the basis of the cross-case analysis we identify common patterns with regards to realized product brands/variants, business diversification, product specifications and process optimization.

As the study is ongoing, the conclusions reached at this stage are tentative. Furthermore, the study suffers from the usual limitations associated with the use of qualitative methodology. While it aims to provide an essential platform, further, larger-scale, research will be needed to test the propositions. Thus, the principal contribution of this paper is propositions and principles that capture companies' absorption and adaptation of strategies to build market server capabilities in China. The findings are tentative guides on how companies can maximize the benefits of their server factories, and add to the theory on upgrading offshore factories to server factories in China.

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Appendix

Interview questions

- What was your motive for setting up production in China?
- Why is China defined as your second home market?
- Do you foresee the server company independency from the home base?
- How do you source ?
- Why do you source as you do?
- What are the strategies behind sourcing?
- How do you interact with suppliers?
- How do we continuously influence our suppliers to develop some unique requirements?
- Do you think outsourcing will be a lasting strategy?
- What is your key initiative on the shop floor?
- What are capabilities?
- How do we build server capabilities?
- How does the server company relate to home base across functions?
- What are the purposes of service centers?
- Why are R&D facilities located in proximity to manufacturing activities?
- How are new products introduced?
- How coordinated is the link and communication between server companies and home base?
- Are the server companies independent or dependent on home base?
- What skills are needed to adapt products to market situations?

Appendix D: Book chapter

Exploring the changing roles of Western subsidiaries in China – balancing global priorities with local demands

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Abstract

Over the past 30 years of economic development, the role of subsidiaries in China has changed. China has become an important host country for subsidiaries of western multinational companies seeking cost advantages and/or access to the emerging market potential. The objective of this paper is to explore the effects of the emerging strategic mandate of subsidiaries to serve local demands while meeting global corporate standards and operations priorities. We confirm well established dimensions such as strategic importance and operations capabilities while embeddedness into local business networks and level of process optimization are suggested as other dimensions determining the roles of subsidiaries and consequently their capabilities in an emerging market. These dimensions are established through literature review and validated by case studies of four Chinese subsidiaries of Danish industrial companies.

Keywords: Server capabilities, MNC, Subsidiary roles

Introduction

The workings of global operations has been a key concern for practice as well as research over the past two decades – the dramatic upsurge of the cost seeking motive for offshore operations experienced were initiated in most western counties in the 90'ties and although survey results still support the cost seeking motive as the key motive for offshoring, it has more recently been followed by an increased intention to capture the potentials opening-up in emerging economies such as the Chinese. This trend also indicates a transition from cost to market seeking operations. As China is attracting a growing number of investments from multinational companies (MNCs), which are not only oriented towards utilizing operations cost gaps, it becomes increasingly important to understand the indigenous resources and capabilities of these offshore subsidiaries, effects of subsidiary changing roles and thus to understand the build-up of server capabilities. Therefore, the development of MNC subsidiaries in emerging markets has gained more attention from practice as well as research. To many companies it becomes clear that serving an emerging market is not the same as serving western markets and serving, therefore, requires the build-up of local capabilities to qualify the company for local orders. Hence in broad terms it may be said that while global capabilities may still act as order winning criteria that overcome liabilities of foreignness (Zaheer, 1995), local capabilities ensure that the company is considered for the order.

From an operations process perspective capabilities represent a firm's ability to deploy its resources so as to achieve specific results. They are tangible or intangible processes that are firm-specific and are developed over time through complex interactions among the firm's resources (Amit and Schoemaker, 1993). Capabilities may also be regarded as complex bundles of resources, skills and collective learning, exercised through organizational processes that ensure superior coordination of functional activities (Day, 1994). Capabilities represent the means for acting-out a particular strategic role, and as such they are shaped by the strategic role of a subsidiary, but the two are not necessarily aligned. Capabilities - due to their experience based nature are always likely to lack behind the strategic role of a subsidiary. Understanding the dimensions of subsidiary roles are important in order to ascertain the attributes leading to the transformation and development of the local subsidiaries and its capabilities. In terms of practical implications, this perspective is important because subsidiary role change influences capability development which is recognized as one of the most sensitive business parameters as MNCs engage in different market contexts, where they are likely to be met with liabilities related to their foreignness (Zaheer, 1995).

The next section introduces the theoretical background of the study, which concludes with the research question of the study. Followed by a description of the research design, four case studies serve to illustrate the trajectories shaping subsidiary roles and consequently their capabilities. Then the case results are discussed against extant literature and the paper is concluded by a discussion of the limitations of the study and directions for further research.

Theoretical background

A subsidiary i.e. operational unit controlled by the multinational company (MNC) and situated outside the home country (Birkinshaw et al., 1998, p. 224). The term may refer to the totality of an MNC's holdings in a host country or to a single entity (such as a sales operation), and there may be one or many subsidiaries within a host country (Birkinshaw & Hood, 1998). Recent work (e.g. Ambos et al., 2006) considers subsidiaries as organizations with the potential to take initiatives, develop value-added activities and implement autonomous decision making. That objects to previously held beliefs in two important ways. First, recent work points to models that question the strong hierarchical relation between an MNC's HQ and its subsidiaries, where all decision making is controlled centrally, and present a rather lateral network where multiple centers of excellence exist for different aspects of an MNC's businesses as stated by Hedlund (1986). Second, and in effect, the role of subsidiaries as passive recipients of HQ's mandates is questioned. As multinationals are confronted with the simultaneous need for global standardization and local adaptation, subsidiaries may differ in their role in an MNC's strategy, the scope of their operations, their set of responsibilities, the importance of the markets they serve, their level of competence and their organizational characteristics (Taggart, 1998; Jarillo and Martinez, 1990; Bartlett and Ghoshal, 1986; White and Poynter, 1984) and, thus, the server capabilities required to alleviate the pressure to reduce time-to-market, increase customer service, improve or adapt products to local tastes, and collaborate with customers (Adeyemi et al., 2012).

However, despite many researchers' interest in subsidiary characteristics during the 2000s (e.g. Birkinshaw et al., 2005; Benito et al., 2003), "... *there has been very little research that looks explicitly at the role of foreign owned subsidiaries in a host country*" (Hogenbirk and van Kranenburg, 2006) and the determinants of subsidiary roles (Manolopoulos, 2010). In addition, subsidiaries in a local market (local subsidiaries) are changing roles autonomously due to the strategic importance of the local environment, leading to the development of activities according to subsidiary's

transformed roles. The transformed roles lead to an aftermath such as developing the subsidiary which entails developing the capabilities required to function properly in the subsidiary's new roles. The transformation demands new operational configurations, proper management of existing capabilities and building of new capabilities so as to cater for arising challenges and to achieve desired operations. Taking a broad perspective a server can be regarded as an operational configuration that develop, improve, adapt, produce, distribute, market and sell products in a local market, specific region or host country only. As such, a server subsidiary is a local subsidiary with a server role that is supplying specific national or regional market. It has autonomy to adapt products and production methods suitable for local markets though, it has relatively developed capabilities. And, server capabilities are the abilities to develop, improve, adapt, distribute, market and sell products based on learning, knowledge accumulation and competence development. Server capabilities are relevant so as to penetrate and serve local markets and to ensure that a local subsidiary is specifically fulfilling its role as a server. These server capabilities could help managers to gain acumen in resources allocation to a local subsidiary towards enhancing a subsidiary's server role throughout its international operations networks.

Subsidiary's role typology

Barnevik (1994) and Porter (1990) proposed a set of motivations such as: advantages of competitive positioning and informational advantage, economies of scale and scope and shortening product lifecycle among others, for firms to formulate their global strategies. Thus, the key decision making for a MNC has been centered on how to configure foreign subsidiaries to take advantage of the potential benefits of global operations: namely, gaining access to new markets, acquiring essential supplies, utilizing local skilled and talented labor, gaining access to knowledge spillovers, and taking advantage of multinational market positions. Although the selection of the location of a foreign subsidiary defines its initial role in the MNC's global network, new roles evolution of a subsidiary is influenced by the level of its capabilities (Kim et al., 2011). But, the studies of subsidiary management have focused on what strategic roles should be taken by subsidiaries from the perspective of global network optimization (Meijboom and Vos, 1997).

Accordingly, literature also suggests a multitude of ways to classify the strategic roles of subsidiaries: Enright and Subramanian (2007) propose a four-dimensional approach based on characteristics such as: geographical scope, product scope and capabilities; White and Poynter (1984) classify subsidiary roles with dimensions like market scope, the types of product and the range of value-adding activities; Bartlett and Ghoshal (1989) describe subsidiary types using attributes like competence in the subsidiary and the importance to the company's global strategy. Jarillo and Martinez (1990) suggest attributes like the localization of functional activities and the degree of the integrations of the activities to provide a classification of subsidiary roles. Gupta and Govindarajan (1991) characterize subsidiary's roles from the perspective of knowledge flows within the MNC across countries. Ferdows (1997) also contributed to the understanding of MNC's global operations by suggesting a framework of foreign plant (subsidiaries) that are: offshore, source, server, contributor, outpost and lead factories. Furthermore, Ferdows' framework has been tested extensively, its validity has largely been confirmed (e.g. Vereecke and Van Dierdonck 2002, Maritan et al. 2004) and it has gained recognition (Meijboom and Vos, 2004; Vereecke et al., 2006; Feldmann and Olhager, 2013). But, we propose that the above dimensions are not fixed and could change along the path of subsidiary role transformation (e.g. transformation from an offshore to a server) in a local market. Hence, the relevance of exploring dimensions determining subsidiaries roles and consequent capabilities in a local market.

The role change of subsidiaries

A subsidiary changes its role through an incremental process of integrating the various activities of the company (Malnight, 1995). The different roles that each subsidiary plays could be assigned to it by the MNC HQ or assumed by the subsidiary in an attempt to gain higher degree of autonomy. In a MNC network, some specific units are granted more autonomy, either because they have made their own strong strategic choices (Ghoshal and Nohria, 1989) or because they are perceived by a MNC as strategic. More autonomy is demanded by subsidiaries that face a local environment which is complicated and volatile, or in which consumers' demands for localization is strong, so that local managers can bring their crucial local knowledge into play (Ghoshal and Nohria, 1989; Gates and Egelhoff, 1986). Therefore, the role of a subsidiary, shaped mainly by the factors of integration and local responsiveness, may be a key determinant of its level of autonomy. Hood and Taggart (1999) suggest three major factors in changing a subsidiary's role, that is, the task assigned by HQ, the subsidiary's choices, and local market forces. Strategic role changes demonstrate noticeable patterns of competence building that could later become a key capability.

Westney and Zaheer (2001) maintain that a subsidiary's role is formed through a combination of its own capabilities, the decision-making processes of the MNC and the resources that are available in the local environment. Similarly, Birkinshaw and Hood (2000) in their later work present that the parents and local environment influences the determination of subsidiary roles and the added influence of subsidiary management cannot be neglected. As such, a subsidiary increasingly builds up its position in the local environment by acquiring alternative value-added resources with the help of external network partners (Schmid and Schurig, 2003) and that could influence the determination of subsidiary roles as an effort towards subsidiary development.

Following Hogenbirk and van Kranenburg's (2006) observation of the roles of foreign-owned subsidiaries in emerging markets and Manolopoulos (2010) suggestion to further explore the dynamics of these role sets, the research question of this study is: *how does the shift of primary strategic motive from serving global to local demands influence the capabilities and roles of local subsidiaries?* The answer to that question is a step in understanding the development trajectories of subsidiaries working under the diverging formative pressures of HQ and local market influences.

Research Design

The present study is of an exploratory nature which is for furthering understanding of particular issues or concepts which have not been deeply investigated so far (Eisenhardt 1989; Voss et al. 2002; Yin 2009). Following Tranfield et al.'s (2003) recommendations, a review was conducted of relevant operations management, strategy management and international business publications, found using title, keyword and abstract content. This approach was supplemented by a citation review of the key literature. EBSCO, ProQuest and Scopus were searched with Google Scholar used for triangulation purposes. As a result, a range of dimensions as trajectories shaping the roles of subsidiaries and consequently their capabilities in a local market are suggested. In order to validate and, if necessary, extend this set of dimensions, a qualitative approach, i.e. case studies of four Chinese plants of Danish-based industrial companies was adopted. Interviews with key informants, annual reports, press releases, media materials, presentation material to customers and stakeholders, and other company documents were used as data sources. The interviewees were contacted by emails and telephone calls were used to follow-up in scheduling a convenient time and place for interviews. The interviews mostly lasted 2 hours and were complemented by plant tours.

A case study protocol was developed to guide the data collection, validation and analysis. An analysis of the case studies, particularly a confrontation of the cases with existing literature, aided the suggested dimensions determining subsidiaries roles and their capabilities in a local market context and that was validated by peer researchers.

Case description

Subsidiary A

The company is a subsidiary of a western MNC with expertise in advanced compressor technologies. All its sales were focused on the Asian market, where the company sold a major part of its products and solutions through its sales offices, authorized distribution channels and another big brand group. In 2008 the company decided to move production and product development to China in order to provide better support for the local market, to facilitate production process and to avoid fluctuations in exchange rates. This meant that an entirely new capability would be required in China to fulfill local market demands. Subsidiary A already sold its products for light commercial and mobile applications in China. To serve the Chinese market better and since it is autonomous from HQ operations; the company expanded its business focus by introducing household applications. Based on a new platform, the new series of household products were a significant upgrade to a range that covers the entire field of household appliances.

The manufacturers of household appliances can also save considerable R&D and production resources when optimization was needed by utilizing the efficiency of the products and the production process. Furthermore, the ratio between outsourced units and in-house production of the product have increased from 50/50 in the early 2000 to approximately 80/20 in 2011, requiring an augmented set of skills in the China office from purchasing to supply development. Through outsourcing, subsidiary A penetrate the local networks and exploits inherent benefits.

Subsidiary B

The company is a subsidiary of one of the world's leading pump manufacturers. It later grew to have sales offices in each region of China to support its customers. Most of the products and solutions sales in China were project related, and some through licensed dealers. The company moved production to China in 1997 in order to be present in a market that represents 25% of the company's global sales. Establishing operations in China brought with it the need to establish R&D there, too, to support global product development and to develop local products. However, the company's R&D was set up in China by employees without formal training or experience in R&D. Therefore, it took a lot of time to build R&D and production capabilities suitable for local operations. Entering the local business networks is important so as to focus on the appropriate niche market because the Chinese market for pump manufacturers is strategically divided into three levels. Level A concerns strategic products that are sold to environmental treatment plants, governmental and world financed projects. Level B is where the company competes with local brands under another name which cannot be traced to it. The purpose is to prevent the local competitors from graduating into level A where the company is having a strong competitive edge. Competing on level B also gives subsidiary B the opportunity to develop new product variants with local customers to achieve performance levels that no other company could promise. Targeting local customers, level C is where the company competes under an entirely different name as well, with lower-quality products, which cannot be traced to it. These products are adapted to local customers' requirement in order to aid the customer's business.

In order to adapt to local market conditions and so as to enhance the operation process, subsidiary B also gives aftersales licenses to some accredited companies to coordinate

their services. Likewise, it has reduced the number of its dealerships by upgrading some of the previous dealers to licensed dealers. Those upgraded as licensed dealers are the dealers who are big enough in terms of annual turnover or those that have shown a steady growth in their business with a close relationship with subsidiary B. Subsidiary B is autonomous from HQ operations.

Subsidiary C

The company is a logistics, sales and service support unit for a manufacturer of televisions, music systems, loudspeakers, telephones, and multimedia products that combine technological excellence with emotional appeal. Its basic strategy is to replicate key functions from HQ to China but the local knowledge, marketing and sales resources and proper product introduction skills are still not fully operational in China. It has fifty-two (52) stores across the whole Greater China region to achieve its basic strategy, support growth ambitions, to be closer to the customers and to reinforce the brand awareness. Based on its growth initiative, subsidiary C has a new business area and partners with four orient state-of-art OEMs having huge market share in China. To import products to China, it uses contract import licensees before it got its importation license and it sells products through key account customers and master dealers. Because of business-to-business relationship, the products are sent to the Chinese facilities of all the partners except one of them. It also built relationships with non-conventional partners in order to be locally embedded. Subsidiary C shares knowledge with its business partners in a range of areas with strong partnership focus.

Due to poor management of some of its dealership outlets, subsidiary C acquired some stores in China to initiate further growth and to set best-practice example of managing a dealership outlet. Although the corporate brand is well-established internationally, awareness in the Chinese market remains low and the companies' marketing budget has to be doubled to accommodate product launching at clubs and accessing local consumers on social media. Subsidiary C has partial autonomy from HQ operations.

Subsidiary D

The company produces and sells wood and steel-based staircase solutions. Raw materials are sourced mainly from China and Eastern Europe while the remaining supplies come from France and Germany. The raw material is supplied as semi-processed materials, and the subsidiary's main task is to finish the processing and assembling the final products and performing quality control inspection. Steel is sourced from two distributors from a big steel company in China. And it is better to produce steel related than wooden related products in China owing to its low cost and ample supply. Consequently, more than 90% of steel based products are manufactured in the Chinese factory and most of them are exported to the Danish site but, approximately 5% of the volume is dedicated to sub-supplier work for local customers. The Danish site takes charge of R&D, product design, production, marketing, and sales activities. But, a local Chinese company has been hired to work with the adaptation of product designs to match local demands and standards. To sell products in China, subsidiary D has difficulty in dealing with just one distributor to a city unlike other countries where they operate through chain stores with products availability. But, it built relationships with non-conventional partners so as to access local business networks and to be locally embedded. Subsidiary D has limited local autonomy and it serves the markets exclusively through retailers (chain stores) relationship, which is managed from the HQ primarily. Attempts to penetrate the Chinese construction market pose difficult in terms of acceptable price/quality mix.

Analysis

The four subsidiaries serve the Chinese market and table I presents a summary of

important findings or strategies of the subsidiaries and main reasons. In the early stages, essential resources and capabilities necessary to perform a server role were transferred to the subsidiaries from their internal network members, HQs, and sister subsidiaries, and worked under a strong formative pressure from these, a transfer strategy which is well-known in the literature (Florida and Kenney, 2000). As a result of that, the subsidiaries could tap into headquarter resources, established global customers relationships, knowledge or competencies to ensure smooth operation while developing operational experience. Due to the growth of the subsidiaries and their ability to sense and explore local opportunities; it became important to interact with local suppliers, more local customers and to gather information for the development of products towards satisfying local customer's requirements. Therefore, subsidiaries seek autonomy to reduce the control of headquarter in its operations. A transformation from subsidiary's initial basic responsibilities and standard products supply to an independent operational entity has both benefits and challenges. To turn the challenges of operating in a local market into benefits require the ability to leverage headquarter competences (Bartlett and Ghoshal, 2002) and to build new capabilities. These capabilities could enable subsidiaries to fully explore, respond to local market opportunities and to cope with operational difficulties in order to satisfy local customers. All the subsidiaries except for subsidiary C have plants in China so as to be closer to the market they serve and to reduce operational complexity while adapting and developing products for the Chinese customers.

Table I: Critical findings/strategies and main reasons

Subsidiary	Critical findings/strategies	Main reasons
A	Proximity of production and product development in China Outsourcing in China	Subsidiary facilitate production process Support local market Diversification of product application Autonomous from HQ operations Scarcity of capabilities for internal operations
B	Local production in China Market segmentation Localizing through aftersales licenses and dealerships	Excess time in building capabilities Penetration into local business networks Development of the operations process Autonomous from HQ operations Lack of R & D capabilities
C	Diversification into new business area Wide coverage of customers Replicate key HQ functions	Leading by example Contract licensees to enhance operations process Budget increase in order to get into local business networks Partnership to leverage capability Partial autonomy from HQ operations
D	Access specific markets Offshore production site	Chain stores to optimize operations process Skill upgrade so as to adapt products locally Not autonomous from HQ operations

Furthermore, Subsidiary C initiated a new business area and partner with other companies to reinforce its brand awareness and to share knowledge and site resources. Subsidiaries A and B have promoted the development of their initial outsourcing partners through training and effective collaboration procedures. More involvement of the outsourcing partners' right from the early stages of product development and introduction has helped them to develop capabilities for process integration and local responsiveness. On the other hand, subsidiary C is relying on its importation of

components and products, and therefore depends on the effective performance of its insourcing agents (e.g. UPS) in order to optimize its processes and to reduce lead time delivery of products to customers. Subsidiaries A and B enjoy extensive autonomy from HQ in their operations which enables quick decision making in connection with the exploration and exploitation of local resources to meet local customers' demand. Subsidiary C has partial autonomy from HQ in its operations, while subsidiary D is still dependent on HQ in decision making and operations processes, though it is coping well due to its possession of some server capabilities to optimize its processes and for integration in its internal network. Subsidiary A outsources about 80% of its operations due to lack of technical competences while subsidiary D produces more than 90% of its products due to availability of raw materials and production competences. Subsidiaries B and C also used aftersales support as a way of relating to customers, accessing local social networks and for information gathering purposes. Subsidiary D also sells its products exclusively through retailers (i.e. chain stores) in the European market but the approach is difficult to adopt in China due to difference in mindset and buying culture. Master and licensed dealers (subsidiary C), authorized distribution channel and local sales offices (subsidiaries A and B) are used for product sales and to penetrate local business networks.

Discussion

Subsidiary role may be drawn from its mode of entry into a geographic market, the strategy of HQ/subsidiary, local innovation, customer relationships or supplier relationships. Relationships between HQ and subsidiaries led to the transfer of capabilities in the early stages based on fixed templates detailing the mode of operation. However, as the particular conditions of the subsidiary are surfaced the standard practices from the HQ should be open for adaptation as illustrated in the cases. Subsidiaries A - D demonstrate the strategic importance of the local opportunities by establishing a significant operations footprint and slowly redirecting capacity from export to serving local demand as well as by diversifying into new business area (subsidiary C). This capacity redirection is required to cope with the shift in the original motive (offshore) of the subsidiaries towards fulfilling a new role (server) which demands a mix of some existing and new capabilities to match the server role. Subsidiaries A, B, and C specifically exhibit that strategic importance as a result of their proximity to the Chinese market while subsidiary D reflects its relevance due to low-cost production. The scope of all the subsidiaries current activities is increased in China compared to when their primary motive was mainly to access low cost production (offshore role). The increased local operations as a consequence of the strategic importance of the local opportunities is in line with the suggestion of Bartlett and Ghoshal (2002) that strategic importance encourages local subsidiaries efforts to adapt and leverage parent company competences, knowledge developed for foreign operations, their marketing and sales culture and established local customers' relationship. As a result of that, the dimension - strategic importance of local opportunities supports the findings of Bartlett and Ghoshal (1986) in the dimensions of their original subsidiary typology and the framework of roles of foreign factories (Ferdows, 1997 & Kim et al., 2011). Hence strategic importance is affirmed as a key determinant of a subsidiary role.

Following Bartlett and Ghoshal (1986) the relevance of capabilities required to serve a local market was evident in the analysis of the four subsidiaries. Diversifying or adapting product applications to local conditions demands new sets of operations capabilities different from that used for former products applications. Leveraging and upgrading of operations capabilities were evident across subsidiaries C & D in order to match desired operations level of internal processes within the subsidiaries. So as to

cater for the demand of new capabilities as the strategic motive is changing from serving global to local demands. This argument is in line with the transfer strategy suggested by Florida and Kenney (2000) whereby resources and capabilities required to fulfill a server role are transferred from internal networks, HQ or sister subsidiaries to the necessary subsidiary. The competences and experience dominant in the four subsidiaries are expressed as knowledge based resources; market relationship and managerial skills/authority and that could be linked to the resources enhancing internal operations and those resources could influence the strategic role of a subsidiary according to the framework of Bartlett & Ghoshal (1986), Ferdows (1997) & Kim et al., (2011) and consequently the capabilities to match such roles. The devotion of time used by subsidiary B in building R&D and production capabilities depicts the necessity of operations capabilities in adapting products to local market requirements. As such the product requirement of a local market influences the capabilities required by the subsidiary serving that market. Subsidiary A's expansion of business focuses by introducing household products in order to serve the local market places a demand on operations capabilities to accomplish the production process in China. Thus, capabilities and in particular, operations capabilities is another dimension of a subsidiary role.

Subsidiaries A and B could develop higher levels of management skills than the others, as a result of their concerted efforts to explore the local markets and to increase local R&D activities aimed at reducing production costs and to serve the demand of the Chinese market. The development of higher levels of management skills builds on Birkinshaw and Hood (2000) that the influence of subsidiary management cannot be neglected in the determination of subsidiary roles. Meanwhile, subsidiary D has been delivering products based on acceptable quality standards in export markets and its distribution network through its embeddedness in the business network of the local market is improving. Subsidiary C is exploiting and developing its local business networks in China through access into social media. As such, some of the subsidiaries used local sales offices, authorized distribution channels, outsourcing (subsidiary A) and market segmentation (subsidiary B) to get into local business networks. On the other hand, subsidiary C used diversification into new business area and partnerships (subsidiaries C & D) to get more involved in the local business networks in order to serve local markets.

The new business area that subsidiary C has developed is an attempt to develop its domain while managing its customer relationships and gathering information for innovation. The domain development initiative is supported by Delany (2000) as a pursuance of new business opportunity in a local market. As earlier mentioned, involvement in local business networks found support in the work of Birkinshaw and Hood (2000) where it is stated that local environment influences the determination of subsidiary roles. Likewise, it builds on the suggestion of Hood and Taggart (1999) that local market forces (as experienced through diversification and partnerships by subsidiaries C & D) is one of the major factors in changing a subsidiary's role.

Similarly, embeddedness of subsidiaries in local business networks builds on the work of London and Hart (2004) that local business networks and partnership with local actors is strongly related to subsidiary's performance and the responsiveness of a subsidiary to local market as revealed by Jarillo and Martinez (1990). Considering the four subsidiaries initiatives to get involved with local actors so as to serve local market demands hence, embeddedness into local business networks is another dimension of a subsidiary role.

In terms of the level of process optimization, subsidiaries A, B and D must have benefited from high degree of market relationship and accumulated experience of HQ, which had first entered China through the operations of local sales agents. The benefits

reflect in the high level of their production process optimization and responsiveness to local requirements. In addition, licensed dealers (subsidiary B), contract import licensees (subsidiary C) and low cost production of steel compared to its other sites (subsidiary D) was adopted to eliminate sloppy activities and to increase the efficiency of their operations process. Subsidiary C used insourcing agents to improve and further optimize its processes while it increased efforts at sensing and orientating towards local market requirements. The respective optimization activities of all the subsidiaries such as leveraging on existing business relationships, experiences and local market accumulated knowledge to increase operational performance are relevant as the local subsidiaries shift motive from serving global to local demands. Therefore, another dimension determining the role of a subsidiary in a local market is the level of its process optimization.

The role of headquarter depicted by the level of autonomy of local subsidiaries operations was also evident as dimension of subsidiary role in subsidiaries A & B but lacks strong support in subsidiaries C and D perhaps due to their dependence on HQ operations. Hood and Taggart (1999) builds on the role of HQ by stating that the task assigned by HQ is one of the major factors in changing a subsidiary's role.

Conclusions, limitations and further research

Based on a review of the literature and supported by qualitative data collected, the contribution of this paper is to increase our understanding on the processes of subsidiary localization by introducing a set of dimensions as the trajectories shaping subsidiary roles and capabilities in emerging markets namely; strategic importance, operations capabilities, embeddedness into local business networks and level of process optimization that capture subsidiaries' development in their localization processes. The contribution is relevant on how to determine a subsidiary's role and/or capabilities and could add to theory on capability development. As a managerial implication, the dimensions could guide managers to ascertain the role of a local subsidiary, the capabilities required to match such role and to exploit such capabilities for the benefit of that subsidiary or other subsidiaries in the operations network. Similarly, managers' understanding of the significance of embeddedness in local business networks for growth and expansion could be improved.

The study suffers from the usual limitations associated with the use of qualitative methodology. While it aims to provide an essential platform, further, larger-scale, research will be needed to test, and generalize beyond the Sino-Danish context, a set of dimensions determining a subsidiary role that is proposed in this study. The authors wish to express their appreciation to the Sino-Danish Center for Education and Research (SDC) for funding this study.

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